THE BUILDER

INCORPORATING

"ARCHITECTURE" and "THE BRITISH ARCHITECT"

VOL. CLXXX MAY 18, 1951 No. 5648

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THIS WEEK'S NEWS

A REVIEW of the South Bank Exhibition by Colin St. C. Oakes, M.B.E., F.R.I.B.A., together with illustrations of the principal pavilions, is given on p. 684

A NEW STRUCTURES LABORATORY at the Cement and Concrete Association's Research Station at Wexham Springs, near Slough, was opened last week by Mr. George Brown, Minister of Works. The laboratory will be used for research into problems relating to structural design. p. 711

A MEMORANDUM dealing with the draft regulations to provide for setting off development charges against payments under the Town and Country Planning Acts, 1947, *in respect of certain mineral workings, has just been published.* p. 713

ACCORDING to the latest Housing Progress Report, presented to Parliament on May 8, *the number of permanent houses completed in Great Britain during March was* 16,757, *compared with* 13,984 *in February and* 13,150 *in January. The total number of new and rebuilt houses for which tenders have been approved and licences issued, up to March* 31, *is* 1,147,191, *compared with* 1,098,985 *up to the end of December last.* p. 714

IN THE HOUSE OF COMMONS on May 8, *Mr. George Brown, Minister of Works, said that the raising of the free limit of* £100 *on repairs would be among those points to be considered in deciding on the amount which might be spent without licence in the period beginning July* 1 *next.* p. 715

THE FESTIVAL

THERE can be no doubt that, once the original grandiose plans were abandoned, no better site than the South Bank could be found for the chief part of London's contribution to the Festival of Britain. The big exhibitions of the past, like Wembley or the White City, though affording opportunities for planning on the grand scale, were far from ideal in situation, particularly the former, on account of distance from Central London, involving for most visitors the discomfort of travelling in crowded trains. The South Bank site is ideal for a small Metropolitan exhibition; it is the geographical centre of London, and only a few minutes by foot, bus or Tube from Charing Cross. Moreover, the area had long been "ripe for redevelopment," and in the process of exhibition building London (following the example of Paris on similar occasions) has gained for herself some valuable permanent assets—including a fine new section of river embankment and a splendid Concert Hall.

The comparative smallness of the site (27 acres—more than enough, let it be said, to tire out the average visitor), has naturally precluded anything in the way of a grand formal layout, and the designers have gone all out for informality. Whether they have been completely successful in this is open to question. Notwithstanding the smallness of the exhibition it has been found possible to provide some fairly large open spaces—the largest of all, that between the Dome of Discovery and the Transport building, looks about the size of Trafalgar Square—but axiality is everywhere deliberately avoided. This straining after complete informality has produced in the subordinate parts of the exhibition a general effect of crowded disorder, and the eye longs for something regular to rest on. A small concession here and there to formality would, we believe, have knit the exhibition more together and made it visually more attractive.

Whatever may be the failings of its plan, there can be no doubt about the originality and attractiveness of the majority of its buildings, the charm and taste of its general furnishings, the gaiety of its awnings, trellises and screens. Even the Hungerford railway viaduct which divides the site into two has been made to look festive by the application of colour, decorative murals and other devices. Sculpture abounds on walls of buildings and in isolation; glass and metal, pools and fountains, greenery and colour gleam and sparkle about the two dominating set-pieces—the Dome of Discovery and the Concert Hall—the Dome a work of Wellsian fantasy of the future, particularly within, where complex staircases (fortunately an escalator as well) climb to remote galleries; the Concert Hall, of immense bulk, bare and severe without, impressive and richly functional within. This Concert Hall is undoubtedly a splendid addition to the cultural assets of London, a remarkable example of contemporary architecture, and a fine start to the permanent redevelopment of the South Side.

Architects, and particularly lovers of old London, in exploring the exhibition will not fail to note with appreciative eye the Rennie archway that still spans a small surviving section of the mostly obliterated Belvedere-road, and, built in under the embankment arch of the new Waterloo Bridge, two Doric columns and a section of the balustrade of the old one. From here they may quickly reach the nautical-looking promenades and embark via the Nelson or Rodney Pier on a steamer either to Battersea to sample the pleasures of the Festival Gardens and the Amusement Park or to Poplar to study the Exhibition of Live Architecture at Lansbury.

Though the South Bank Exhibition is bound to be the great centre of attraction, it must not be forgotten that what we are celebrating is a Festival of Britain and that throughout the country, in city, town and village, much is being done to show our overseas visitors the spirit and genius of our native land. Not only temporary but much lasting good may well come of these activities, not merely the permanent enhancement of local amenities but the improvement of friendly relations with the peoples of other lands. Present circumstances and those of the Great Exhibition of 1851, which we are in part commemorating, have hardly anything in common, yet the motto of that exhibition—"Agreement has bound together by peace things separated by locality"—is as apt to-day as it was then. If the Festival of Britain succeeds in strengthening the ties of the

peace- and freedom-loving peoples of the world it will have been abundantly justified.

In the meantime, praise and thanks to the architectural and engineering professions and the building industry for their remarkable achievements on the South Bank.

SCHOOL STANDARDS AND COSTS

THE metaphor of the "industrial cake," with neat little diagrams showing the size of the slices available for wages, profits, taxation, renewal of plant, etc., has been widely used since the war to illustrate the need for increased production to increase the size of the cake so that all may get a bigger slice. The Minister of Education's present difficulties in regard to school building arise from the fact that the size of his "cake" is not really fixed, but is shrinking before our eyes. The limits of cost for schools have not been formally reduced since the middle of 1950, but the average cost of building has subsequently increased by at least 12½ per cent, so that by holding costs at £140 and £240 per place for primary and secondary schools respectively the Ministry are in effect imposing a further reduction of one-eighth. The attitude of the Ministry, finding itself between an inexorable budget on the one hand and inexorable population statistics on the other, is understandable enough: dearer schools mean fewer schools. Nevertheless, the architect's position also becomes daily more difficult. Although he plans as economically as the Building Bulletins prescribe, and specifies austerely enough, he still often transgresses the limits of cost. In such a case he may well ask "But what am I to do now?" The Ministry's Building Bulletin No. 4 is an attempt to tell him.*

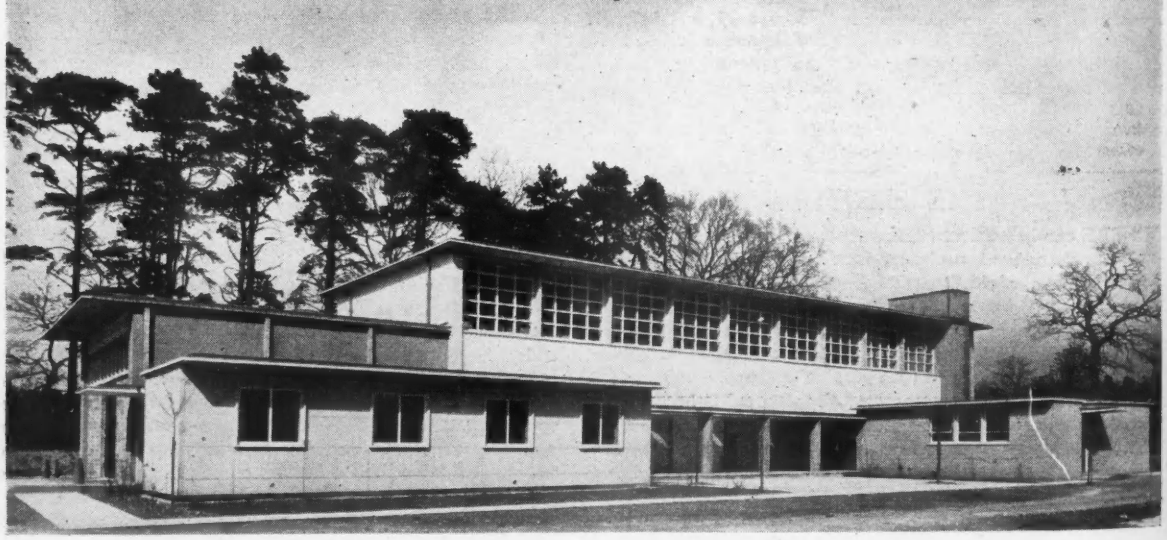
It is usual to adjust an unacceptably high tender by reducing the standard of finishings and by cutting out what the general public would describe as "frills"—flower beds, works of art, paddling pools, and so on—although the high cost may have been due actually to over-elaborate structure or to unduly cautious foundation design. If the normal proportional cost of each element in a school were known it would be possible to detect the reasons for excessive tendering and, still better, to eliminate them at the design stage. The Bulletin describes methods of arriving at such proportional costs (cost analysis) and of using them on the drawing-board (cost design). Ceiling costs for each element can be determined and materials and components selected accordingly. Clearly such a system, if reliable and easy to apply, would save both disappointment and abortive work.

It is at this point we foresee a number of difficulties. The first is that the proportional costs of building elements are not constant; the recent increase in timber prices, for instance, is much greater than the general increase in building costs, and would therefore throw out of balance all elements in which timber figures prominently. Another variable is dealt with in the Bulletin itself where, with the Ministry's innocent habit of "teaching its grandmother to suck eggs," it is proved that the proportion of external wall to floor area is higher in a small or complex building than in a large or simple one. Moreover, no system can provide for those imponderable costs that contractors allow for in appreciation of their own position and that of the industry as a whole.

The constants, to be of real use, would have to be not only up-to-date, but based on as many tenders ranging over as wide a field as possible so as to show up errors that may run through the whole of an individual practice, as, for example, addiction to an unduly expensive constructional system. The best authority to obtain and publish such information is surely the Ministry itself; to abstract constants on a useful scale is beyond the resources of the individual architect or quantity surveyor.

Even if the Ministry prepares the figures, only experience can tell whether the considerable outlay of effort that would still be necessary would produce very much better results than do the experience and common sense with which problems of cost are already normally tackled. In cutting our cake it may not be necessary to set out the divisions by rule and compass; the experienced eye is perhaps good enough.

*Building Bulletin No. 4. Published for the Ministry of Education by H.M.S.O., price 1s. net.



STRUCTURES LABORATORY, SOUTH ELEVATION, WEXHAM SPRINGS, FOR CEMENT AND CONCRETE ASSOCIATION
The late Christopher Nicholson, architect. Mrs. Eleanor Michell, A.R.I.B.A., assistant. **(See page 711)**

NOTES AND NEWS

"Exhibition of Exhibitions"

THE origin and development of exhibitions in this country is well illustrated in the Royal Society of Arts "Exhibition of Exhibitions," which was opened by Princess Elizabeth on May 1 and will continue until September 29. The exhibition is being staged in the R.S.A.'s rooms, John Adam-street, Adelphi, W.C.2.

Six of the original exhibits of the first public art exhibition in England, held at the Society's room in the Strand in 1760, including paintings by Reynolds and Wilson, are on view. A year later, in 1761, the Society organised its first industrial exhibition, and this is illustrated with the aid of a number of small models of the machines on view. The first exhibition of industrial design in 1847-50, the first photographic exhibition in 1852-53, and the Great Exhibition of 1851, with all of which the Society was connected in some way or other, are also illustrated. Subsequent exhibitions of unusual interest receive brief attention.

London's Open-Air "Academy"

THE CHILLY PERIODS this week have kept away neither exhibitors nor spectators from the L.C.C.-sponsored open-air "Academy" in the Victoria Embankment Gardens. And there are certainly no signs that the current show of paintings is likely to be any less successful than previous displays.

Without doubt, this annual exhibition is a praiseworthy enterprise. It may be argued that this is not the best atmosphere in which to study works of art, but there is little evidence to support that view. The varied assortment of subjects and styles to be seen and the rather higgledy-piggledy method of hanging are notable features which give this exhibition a character of its own which is not at all displeasing. Apart from a few inevitable displays of insanity (which deceive few), there is, plainly, a very considerable amount of talent and skill among the artists whose work is on view.

One interesting point revealed by this exhibition is that few of the exhibitors, it seems, find pleasure in attempting detailed studies of buildings. Does this mean that there is a lack of appreciation of architecture among artists to-day? There are, however, some exceptions, such as the water-colours and ink drawings by Mr. Frank Sully, A.I.A., who is, apparently, attracted by views of bombed sites, and the drawings of London theatres and other landmarks by Mr. Alfred W. Bullock. We need more exhibitions of this sort.

Festival Lectures

SOME 275 places will be available to British applicants on the 11 six-day Festival of Britain courses which have been arranged by the British Council to take place between June and September. Lecturing at the course on "Characteristic Styles of British Architecture" (June 24-30) will be Messrs. E. R. Jarrett, Ronald Duncan, Gontran Goulden, Peter Shepheard, Paul Reilly, H. T. Cadbury-Brown, and Professor H. O. Corfiato. Further details are obtainable from British Council, 65, Davies-street, W.1.

Clearer Trade Pamphlets

AMERICAN ARCHITECTS recently expressed thanks to building products manufacturers in America who had produced trade literature which was written to help the busy building designer rather than hoodwink him.

The American Institute of Architects and the Producers' Council have awarded certificates of merit and commendations to 35 manufacturers for the excellence of their technical brochures. They were the successful entrants in an annual competition, held this year for the third time.

American architects are interested in keeping abreast of modern developments in the field of building materials and regard better trade publications as an essential part of their work. Accurate and concise text, clear and vivid illustrations, clean and effective layout all help, they think, to grasp and absorb the information about building materials necessary to know how and when and where to use them in modern building.

Employment of Students

WITH the approach of the summer vacation the attention of R.I.B.A. members is called to the scheme for helping students to gain practical experience in architects' offices between June and October. Since 1947, when the scheme was initiated, the number of members notifying the Institute of their willingness to offer such employment has been gradually diminishing; and for the last two years it has, unfortunately, been necessary to disappoint several students.

The R.I.B.A. very much hope that the response this year will be sufficient to enable all students who apply to be accommodated. Members willing to co-operate in the scheme should notify the Secretary, at 66, Portland-place, W.1, without delay, giving particulars of (a) the period for which employment is offered; (b) the number of students that can be employed during the period; and (c) the remuneration offered.

Glenrothes Appointments

GLENROTHES DEVELOPMENT CORPORATION have appointed MR. HERBERT C. FIELD, A.R.I.B.A., assistant architect to the County Borough of Eastbourne, and MR. JAMES B. SCOTT, A.R.I.B.A., senior assistant architect with the County Borough of Walsall, as architects, and MR. DAVID H. ROBERTSON, an architectural assistant with the burgh engineer, Kirkcaldy, and MR. H. J. RICHARDS, of Buckingham, as assistant architects. MR. STANLEY H. CLARK, of Edinburgh, has been appointed junior engineering assistant.

The Corporation have also appointed MESSRS. GEORGE DAVIE, CRAWFORD AND PARTNERS, chartered civil, structural and reinforced concrete engineering consultants, of Glasgow, as specialist consultants in respect of special structural details of the Corporation's chief architect's design for the second shopping development at Woodside, including a proposed community hall.

Applications are now invited for further posts, among them one for Assistant Chief Architect at a salary of £900-£1,050 per annum. Applications to the Secretary required by May 30. Details are advertised in this issue.

County Architect Appointed

MR. CHARLES H. SIMMONS, Lancashire Deputy County Architect, has been appointed Shropshire County Architect in succession to Mr. A. G. Chant who retires in August. Mr. Simmons has held his present post since 1948, and has also served with Essex, Middlesex and London County Councils.

County Architect, Northumberland

MR. W. W. TASKER, F.R.I.B.A., county architect of Northumberland, is to retire in August. His successor will be Mr. C. C. Brown, A.R.I.B.A., deputy county architect since 1948. Mr. Brown is 46 and joined Northumberland County Council in 1948 after ten years as chief architectural assistant with the East Suffolk County Council. He has also had experience with Cheshire County Council and has been in private practice at Newcastle-on-Tyne and London.

Building in Australia

AN AUTHORITY on the present position of the building industry in Australia, who is over here for the Festival, is Mr. Colin C. Brewster, F.R.A.I.A., A.R.I.B.A., B.Arch., M.T.C.P.I., of the Sydney firm of C. C. Brewster and Murray. According to Mr. Brewster there is still considerable scope for British firms to erect factories in his country, although the prevailing permit system for building, local bye-laws and regulations and the availability of land in the industrial areas present difficulties to those lacking firsthand knowledge of conditions in Australia.

Professional Announcements

MR. GEORGE LOWE, A.R.I.B.A., of 3a, George-street, Croydon, has moved his offices to No. 4, High-street, Croydon. Tel: Croydon 0660.

MESSRS. MAHON AND SCEARS, chartered quantity surveyors, have removed from 36, Nottingham-place, W.1, to 31, Harley-street, W.1. Tel.: Langham 7211/2.

COMING EVENTS

Monday, May 21

THE "BUILDER" LOW-COST HOUSING COMPETITION.—Exhibition of winning designs, Marriott Room, York Public Library. (Closing date May 26.)

R.I.C.S. (JUNIOR ORGANISATION).—A.G.M. and Mock Rating Appeal. 12, Gt. George-street, S.W.1. 6 p.m.

ECCLESIOLOGICAL SOCIETY.—Mr. A. T. Bradford on "Spanish Cathedrals and Churches." Archbishop Davidson Institute, Lambeth-road, S.E.1. 7 p.m.

Wednesday, May 23

ROYAL SANITARY INSTITUTE.—"The Pimlico District Heating Scheme, Westminster: An Important Hygienic Development," by Mr. A. E. Margolis. 90, Buckingham Palace-road, S.W.1. 2.30 p.m.

Thursday, May 24

TOWN AND COUNTRY PLANNING ASSOCIATION.—"Reclaiming the Desert," by Mr. Ritchie Calder, C.B.E. 28, King-street, Covent Garden, W.C.2. 6.15 p.m.

Friday, May 25.

TOWN PLANNING INSTITUTE.—Annual country meeting. Polygon Hotel, Southampton. 2.30 p.m. Continuing until May 27.

FEDERATION OF COATED MACADAM INDUSTRIES.—Annual luncheon. Dorchester Hotel, W.1. 1 p.m.

Saturday, May 26

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.—Annual social and dance. Town Hall, St. Pancras, N.W.1. 7.15 p.m.

FROM "THE BUILDER" OF 1851

Saturday, May 17, 1851

THE INHABITED HOUSE DUTY.—By the new Act, if it pass as printed, the window duty is to be repealed from April 5 last, and the new house-tax substituted from that date as an assessed tax, under management of the Inland Revenue Commissioners. It has even been officially directed, it is said, that the assessors be instructed not to assess the window duty for the current year. The new Bill, however, according to Lord Duncan, cannot be carried into act before the 5th of October. Where the Government may be by that time it is hard to say. We cannot believe, moreover, that they will allow the window-tax to lapse until they have secured the house-tax.

A PLAN FOR ACCRINGTON

Reviewed by H. V. LANCHESTER, Hon.Litt.D., F.R.I.B.A.

BEFORE the Town and Country Planning Act of 1947 transferred its powers to the Lancashire County Council, the Corporation of the Borough of Accrington had commissioned Professor J. S. Allen and Mr. R. H. Mattocks, of King's College, Newcastle-upon-Tyne, to prepare a programme for the future improvement of the town. This has now been issued in an interesting book entitled "Industry and Prudence." It has been a matter of great regret to all concerned that Mr. Mattocks died during the progress of the work, and the report, in which is acknowledged the enthusiastic assistance he has received from those co-operating with him, is signed by Professor Allen.

Accrington is in a central position among the group of towns which grew up in the valleys of North Lancashire when the cotton textile industry became mechanised. It lies almost equidistant from Burnley to the east and Blackburn to the west. Adjacent to Accrington on the west are Clayton, Church, and Oswaldtwistle, with Rishton and Great Harwood close by; these ought to be treated as a unified area and under the County Council such a course will be possible. In 1801 the population of Accrington was about 4,000 and growth was not rapid until the middle of the nineteenth century; in 1881 it had reached 30,000, and at its maximum in 1911 it was 45,000 (and that of the before-mentioned three adjacent built-up areas 29,000). Since 1911, the population of the borough has fallen to 37,000 in 1931, a reduction, common to all the towns in the area, because of the great fall in the export of cotton cloth to less than one quarter of what it had been.

Accrington was fortunate in that owing to its growth being mainly in the latter half of the last century, it has only a small proportion of the worst slums, and though most of the housing is such as cannot be regarded as ideal, it is not dilapidated and is capable of improvement, while there are later developments substantially in accord with present-day practice. It cannot be claimed that the residential areas of the town are other than dull and monotonous, belonging, as they do, to the worst period of Victorian planning and design, but owing to the fall in population there is but little overcrowding with its consequent evils.

Accrington, during the early years of its development, owed much to the Peel family and other public-spirited industrialists; in the provision of open spaces it is exceptionally well off and though the town itself is much too densely packed, no house in it is more than half a mile from open space of some kind. The public parks cover an area of 226 acres, six acres per thousand of the population; despite this there is a deficiency in playing fields owing to the topography of the site, resulting in almost all the reasonably level ground having been taken up by building; leaving very little suitable for this purpose. To provide the requisite area it will be necessary to go outside the borough boundary; and the same course will have to be followed in the case of housing if present densities are to be reduced by more open building with today's standards of layout.

In 1848 the railway came to Accrington, crossing the valley in which the town lies by a viaduct of 20 well-proportioned arches. This viaduct, though it had been obscured and half buried by subsequent irregular accretions in the form of stores, sheds and other buildings, retained its character, and its dignity as a municipal feature was soon recognised by the planners, so that clearance around it was recommended in this book. Such a clearance would have an added advantage in providing part of a relief route improving the facilities for traffic through the town which at present overloads the main streets and obstructs local movement.

This proposed route starts from the Manchester-road to the south, runs north-westward to the railway station, bends round and follows the line of the viaduct till it reaches an open roundabout on this line, from which three branches radiate west, north and north-east towards Church Clayton and Burnley. This scheme links up with a clearance made in 1936 to the east of the station to open up the way to a good general programme for a civic centre around the present town hall and central market. It is proposed to carry out this plan by some three instalments, to provide sites for all the more important public buildings in the most appropriate central position near the railway station and business district.

The illustrations we reproduce show the present condition and the ultimate plan of the area. The town hall demands extension; between this and the church an important community centre is devised and beyond, on rising ground, is placed the technical school; a site is also indicated for a health centre, while some rearrangements in the positions of hotels, cinemas, etc., are proposed. Part of the area would be laid out as a bus station, provision for car-parking would be included and a fair proportion planted to give a park-like effect. As the reorganisation would last for a rather extended period, other demands might claim to be dealt with from time to time. It should be noted that the area dealt with rises rather sharply towards the north-east and the south.

One important question that arises in this case, in common with most north-west manufacturing towns, arises from the effect of the climate in accentuating atmospheric pollution. It is recognised that remedial measures are needed to deal with this in all populous centres, but the Lancashire topography and climate enhance the bad effects of imperfect methods of combustion.

COMPETITIONS OPEN

COVENTRY CATHEDRAL.—Promoted by Coventry Cathedral Reconstruction Committee. Premiums: £2,000, £1,500 and £1,000. Assessors: Sir Percy Thomas, P-P.R.I.B.A.; Mr. Edward Maufe, R.A.; and Mr. Howard Robertson, A.R.A. Conditions from: The Secretary, Coventry Cathedral Reconstruction Committee, 22, Bayley-lane, Coventry. Dep. £2 2s. Closing date for designs: July 20, 1951. *November 3, 1950.*

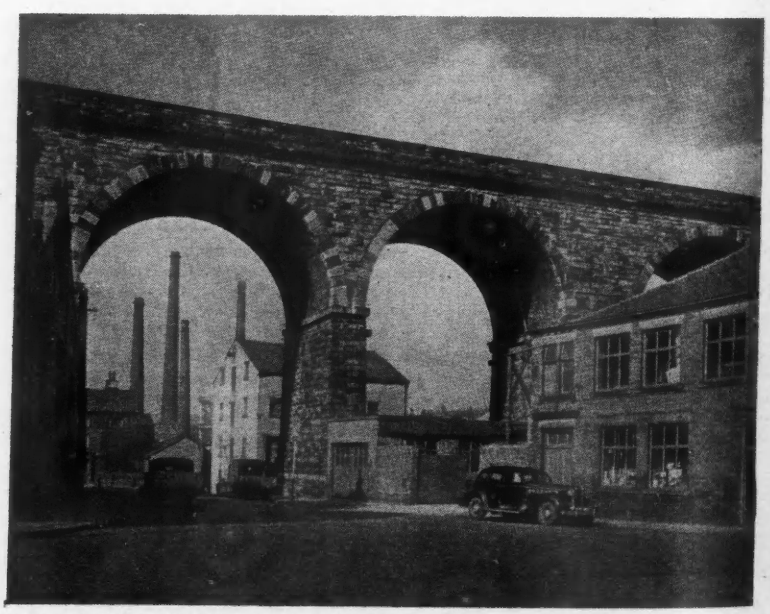
MARINE AND TECHNICAL COLLEGE BUILDINGS, SOUTH SHIELDS. Promoted by South Shields County Borough. Premiums: £500, £250 and £100. Assessor: Mr. S. W. Milburn, M.B.E., F.R.I.B.A. Conditions from: Mr. Harold Ayrey, Town Clerk, Town Hall, South Shields. Dep. £2 2s. Last day for questions: March 21. Closing date for designs: July 21, 1951. *January 19, 1951.*

COLLEGE OF FURTHER EDUCATION, POOLE.—Promoted by Dorset County Council. Premiums: £1,000, £500 and £300. Assessors: Mr. Julian Leathart, F.R.I.B.A., Mr. S. A. W. J. Johnson-Marshall, B.Arch., A.R.I.B.A., Mr. H. E. Matthews, F.R.I.B.A., Mr. J. Haynes, M.A. (County Education Officer), and Mr. H. J. Shelley, O.B.E. (Chief Inspector M. of E.). Conditions from: Clerk to County Council, County Hall, Dorchester, Dorset. Dep. £1 1s. Closing date for designs: September 30, 1951. Last day for questions: April 30, 1951. *February 23, 1951.*

Dates in italics at the end of paragraphs refer to issues of "The Builder" in which details of the competitions appeared.

London University Buildings

The annual report of University College, London University, states that the next major building project in connection with the college is the first stage of the new physics building from the north junction to the present chemical engineering building, which is due to start this year. Plans are also well advanced for a building to complete the west, or Gower-street, front of the main quadrangle, joining the present engineering and statistics buildings.



THE RAILWAY VIADUCT, Accrington's "finest structure." Under these arches passes the Blackburn-road

Central area as now

The new plan, showing proposed redevelopment of central area

A PLAN FOR ACCRINGTON. (See facing page)

FESTIVAL OF BRITAIN

The South Bank Exhibition

Reviewed by COLIN St. C. OAKES, M.B.E., F.R.I.B.A.

Photographs by S. W. Newbery

ON May 4, precisely on time, Gerald Barry's curtain arose to unfold the Festival pavilions on the South Bank. What do they look like? Following the rather faint-hearted praise or cynical belittlement in the national Press, these notes merely record the visual reaction of a provincial stranger viewing this national prize-baby at last groomed and ready for showing to the world.

Many fireside "visitors" have doubtless already decided just how good the exhibition is—artistically, of course. This is a peculiar national characteristic, and I have never ceased to wonder at the self-assured critical faculties which enable any British adult accurately to assess the merits of anything from a Henry Moore to a new block of flats. We are a nation of art critics. The Scandinavian is modest outside his professional sphere. The American is usually forearmed with a Baedeker. Not so the Englishman. He *knows* what he likes and knows that what he likes is good, and without invitation he tells you so. At most exhibitions he is assisted in his selection by one or two tastefully designed buildings which are just his cup of tea. The rest he dismisses as "new fangled" and "modernistic." Perhaps the 1951 Exhibition on

The Festival Designers

THE FESTIVAL PRESENTATION PANEL

The architecture and the display, which embody the theme of the exhibition, were planned under the responsible direction of the Festival Office's Exhibition Presentation Panel, which has the following membership :—

GERALD BARRY, *Director-General, Chairman.*
CECIL COOKE, *Director Exhibitions, Deputy Chairman.*
MISHA BLACK, O.B.E.
G. A. CAMPBELL, *Director, Finance and Establishments.*
HUGH CASSON, *Director, Architecture.*
IAN COX, *Director, Science and Technology.*
A. D. HIPPISLEY COXE, *Council of Industrial Design.*
JAMES GARDNER, O.B.E. JAMES HOLLAND.
M. HARTLAND THOMAS, *Council of Industrial Design.* RALPH TUBBS.
PETER KNEEBONE, *Secretary.*
The theme of the exhibition was devised by IAN COX.

COUNCIL FOR ARCHITECTURE, TOWN PLANNING AND BUILDING RESEARCH

Following were members of this Council:

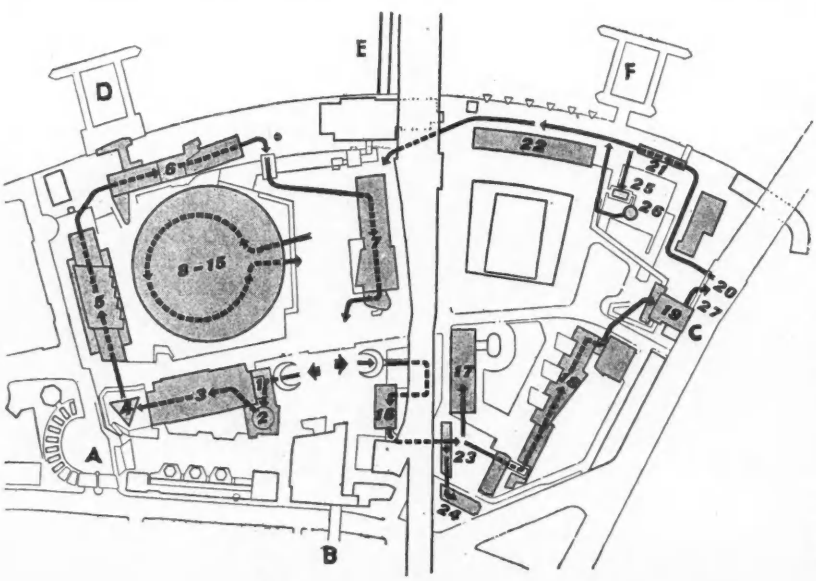
HOWARD V. LOBB (*Chairman, who also acted as Controller, South Bank Construction*).
PROF. H. V. A. BRISCOE. ROBERT MATTHEW.
HUGH CASSON. ROLAND NICHOLAS.
F. J. FORTY. SIR GEORGE PEPLER
PROF. W. G. HOLFORD. J. M. RICHARDS.
HOWARD ROBERTSON.

DESIGN GROUP

UPSTREAM CIRCUIT. "The Land."
Architectural Direction : Misha Black, O.B.E.
Theme : Ian Cox.
Display Design : James Holland.

DOWNSTREAM SECTION. "The People."
Architectural Direction : Hugh Casson.
Theme : M. Hartland Thomas.
Display Design : James Gardner, O.B.E.

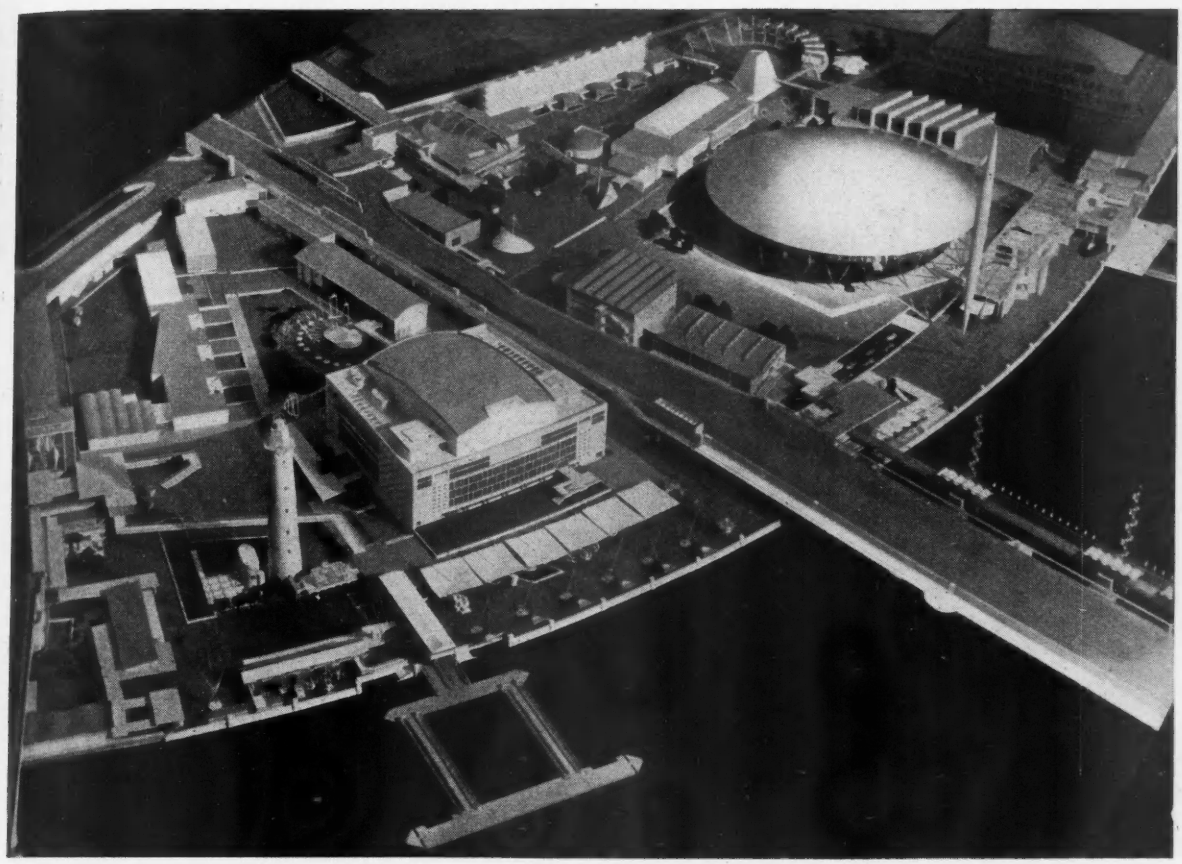
*** The full list of credits for responsibility was given in Mr. John Ratcliff's article on the organisation of the South Bank Exhibition in *The Builder* of April 13 last.



THE WAY ROUND

A Chicheley-street Gate
B Waterloo Station Gate
C Waterloo Bridge Gate
D Nelson Pier
E Bailey Bridge
F Rodney Pier

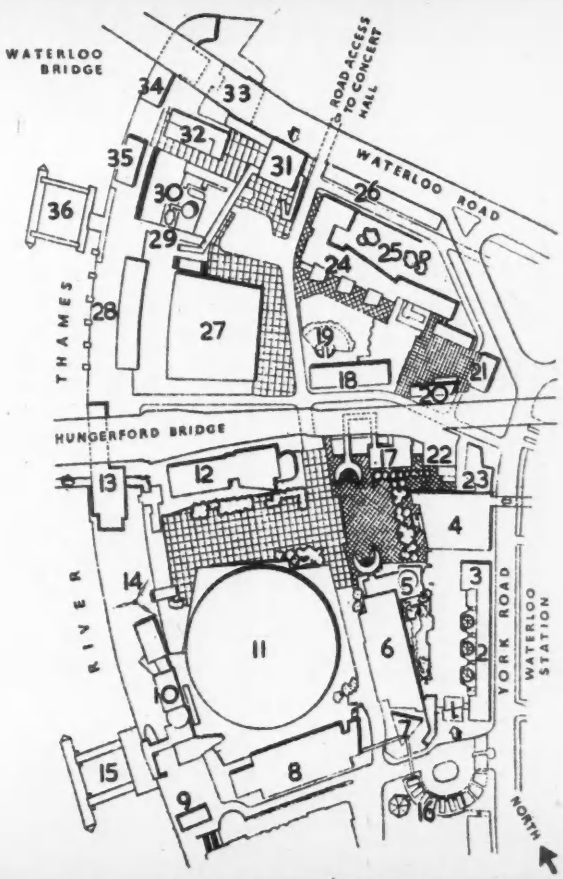
1 Land of Britain
2 Natural Scene
3 The Country
4 Minerals of the Island
5 Power and Production
6 Sea and Ships
7 Transport
8-15 Dome of Discovery
16 People of Britain
17 Lion and Unicorn
18 Homes and Gardens
19 The New Schools
20 Health
21 Sport
22 The Seaside
23 Television
24 Telecinema
25 1851 Centenary Pavilion
26 The Shot Tower
27 Design Review

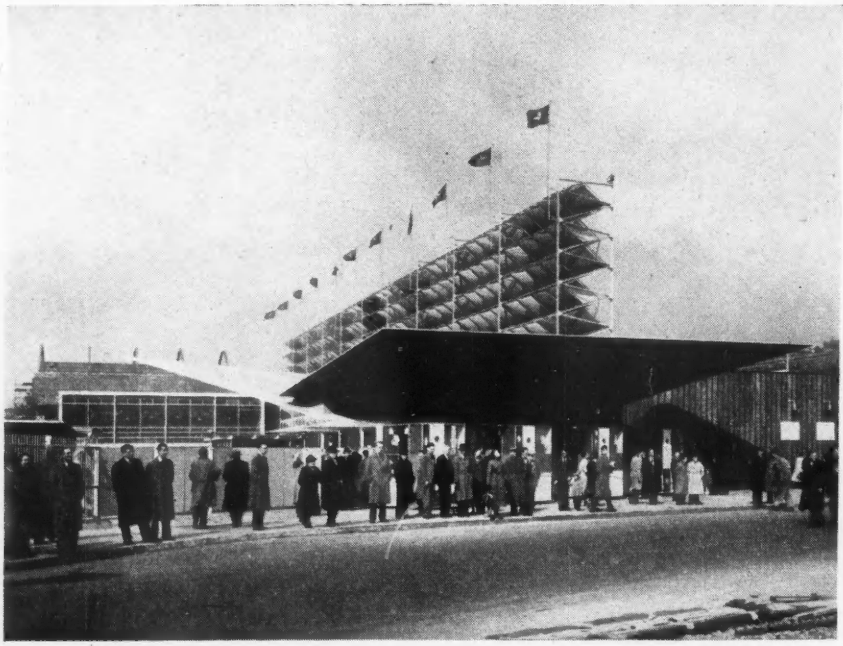


General view of South Bank Exhibition (from a model)

KEY TO PLAN

1 Chicheley-street Gate
2 Information and P.O.
3 Fairway Cafe
4 Rocket Cafe, Escalator Hall for Underground line
5 The Land of Britain
6 The Natural Scene
7 Minerals of the Island
8 Power and Production
9 The '51 Bar
10 Sea and Ships
11 Dome of Discovery
12 Transport and Communications
13 Regatta Restaurant
14 The Skylon
15 Nelson Pier
16 Administration
17 The People of Britain
18 Lion and Unicorn
19 The Unicorn Cafe
20 Television
21 Telecinema
22 Locomotive Exhibit and Turntable Cafe
23 Police and First Aid
24 Homes and Gardens
25 Courtyard
26 Administration and Staff Canteen
27 Royal Festival Hall
28 Seaside
29 1851 Centenary Pavilion
30 Shot Tower
31 Waterloo Bridge Gate, New Schools and Design Review below
32 Harbour Bar
33 Health
34 Thames-side Restaurant
35 Sport
36 Rodney Pier





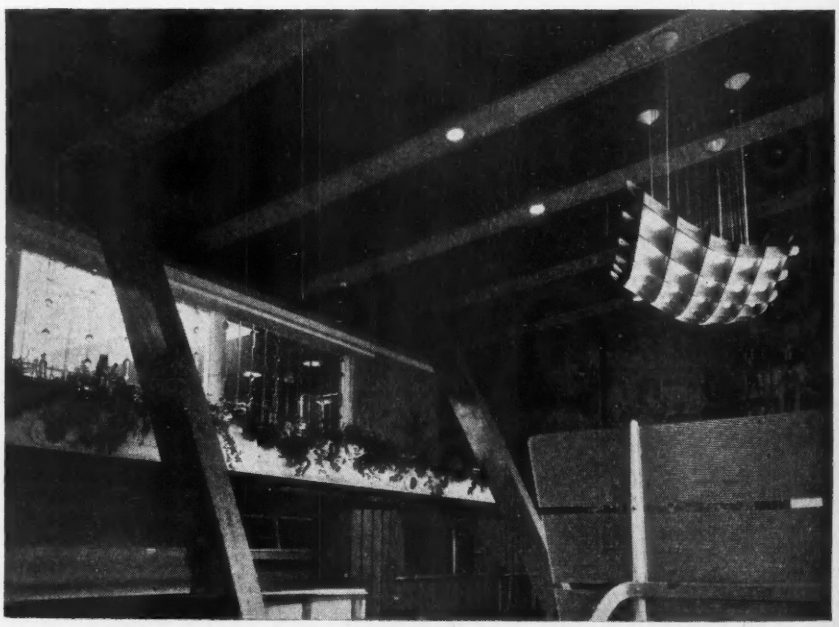
CHICHELEY - STREET ENTRANCE, with York-road screen. Architects: the Architects' Co-operative Partnership. In background is the Waterloo Gate. Architect : Gordon Tait, F.R.I.B.A.

the South Bank will help these mass critics to appreciate the progress that has been made in architectural design and display since the Wembley Empire Exhibition ; and possibly to re-educate them visually.

ESCAPE FROM STYLE

Here, on the South Bank, the architecture is free from fashionable intricacies, pedantry and style. The buildings show that we have architects and display designers in Britain as talented as any nation in the world, and these would be the first to offer thanks to the consultant engineers, Freeman Fox and Partners and R. T. James and Partners, who by common consent have done a magnificent job.

First, the site. It consists of only 27 acres. Within this the Festival's Design Group has planned 19 pavilions, 13 café-restaurants and a cinema, in addition to the numerous administrative offices, information bureaux, etc. Even these few acres are restricted by the Hungerford Railway bridge at high level and the complicated planning of entrances from Waterloo Station at two levels, Chicheley-street and Waterloo Bridge-road. It is possible that a longer river front and less depth would have simplified the layout;



THE ROCKET RESTAURANT below the Waterloo Gate. Architect : Gordon Tait, F.R.I.B.A. Designer : Kenneth Cheesman, A.R.I.B.A.

SERVICE AND ADMINISTRATION BLOCK, with decorative screen of welded tubular metal and coloured canvas panels above. In the foreground is the concourse. Architects : the Architects' Co-operative Partnership

particularly as, under Stage II of the L.C.C. South Bank development, the new river wall has eventually to be continued further eastwards.

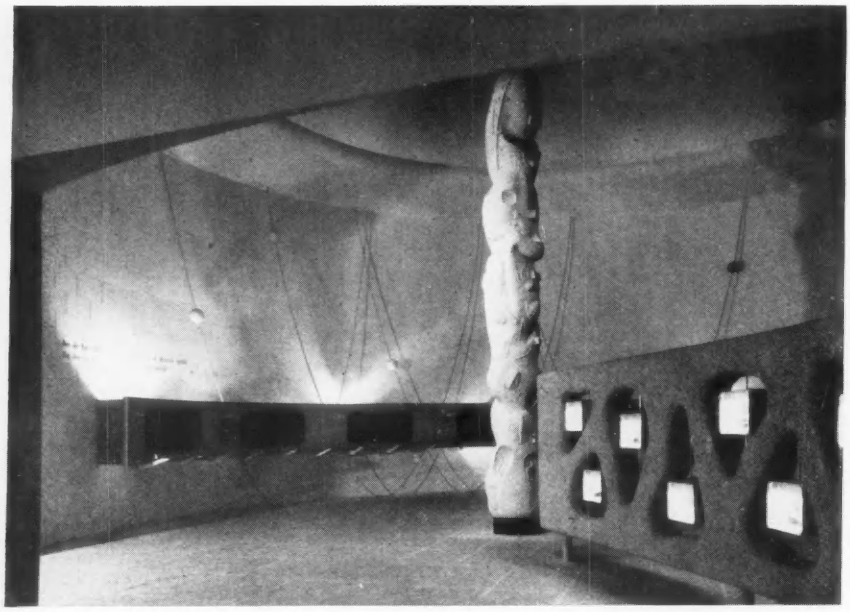
In addition other factors had to be considered. Plans had to be co-ordinated with requirements for public safety, exits, fire precautions, ventilation and structural stability. Another architectural problem facing the planners was to relate the scale of the pavilions with the larger scale of the Royal Festival Hall, County Hall and Waterloo Station.

In spite of all difficulties, æsthetic doubts and anxieties by the mass critics and Press criticism of national expenditure, the scheme went ahead. Howard Lobb and his colleagues of the Architecture Committee accepted the challenge with courage and faith. The results are most impressive. In a limited site reclaimed from the rubble of slums and neglected wharves, we see the pavilions grouped with skill and originality against the backcloth of the river. It seems that the centrepiece of the £9,000,000 Festival was at any rate architecturally worthwhile.

The layout is imaginatively grouped to give every pavilion a setting of its own, either towards a relatively spacious courtyard or with a view inside the curve of the river. Visitors can perambulate without restriction in the pavilions and piazzas. Views constantly change and a sense of scale and spaciousness has been achieved without confusion. Almost every pavilion is designed by a separate team of architects, several of whom associate themselves in pristine groups as namelessly as the Gothic master masons. Hugh Casson, the director of architecture, and his colleagues of the Design Group have co-ordinated their ideas and blended the designs sympathetically. Each pavilion is individual in that it suggests its own special pertinence to the exhibits displayed without intruding unnecessarily into the mass grouping of the exhibition.

NORMAL CONSTRUCTION THE RULE

Rather surprisingly, the pavilions are mostly of normal construction. Prefabrication is, in the main, restricted to the sheathing of commonplace structure. Colour has been handled bravely and finishes are gaily patterned to express the legitimate playfulness of exhibition architecture. Here and there are flashes of mediocrity where the design or *décor* is a trifle "nursery," suggesting the inconsequent dramatics of student whimsies, but in most of the pavilions the keynote is *structure*, designed decoratively to clothe and display the exhibit. Indeed, the keynote of the whole exhibition is modest and free from the smug formality or vulgar pageantry one so often associates with the architecture and display at exhibitions. Here, there is no chromium pastiche, no exaggerated "spectacle," no Princes in butter. The choice of structure and materials



LAND OF BRITAIN. Architect: H. T. Cadbury-Brown. Display Designer: V. Rotter

is as imaginative and dignified as the selected exhibits which epitomise our island story within.

A "NARRATIVE" EXHIBITION

A word about the exhibits and their display. This is largely a "narrative" exhibition where the exhibits speak for themselves, telling in a vast mosaic the story of the achievements on land, sea and air by people of this island. Careful choice and vetting by Festival Authorities and the Council of Industrial Design has resulted in a widely varied selection which is, in the main, both practical and attractive. The display is well handled: space has been sacrificed in order that crowds can really *see* the exhibits. Lettering and backcloths are used clearly and sensitively and there is no evidence of sensational work by display contractors.

THREE FUNDAMENTALS OF EXHIBITION DESIGN

In the basic requirements of exhibition architecture, there are probably only three fundamentals:—

(*a*) the display of the exhibits to their best advantage;

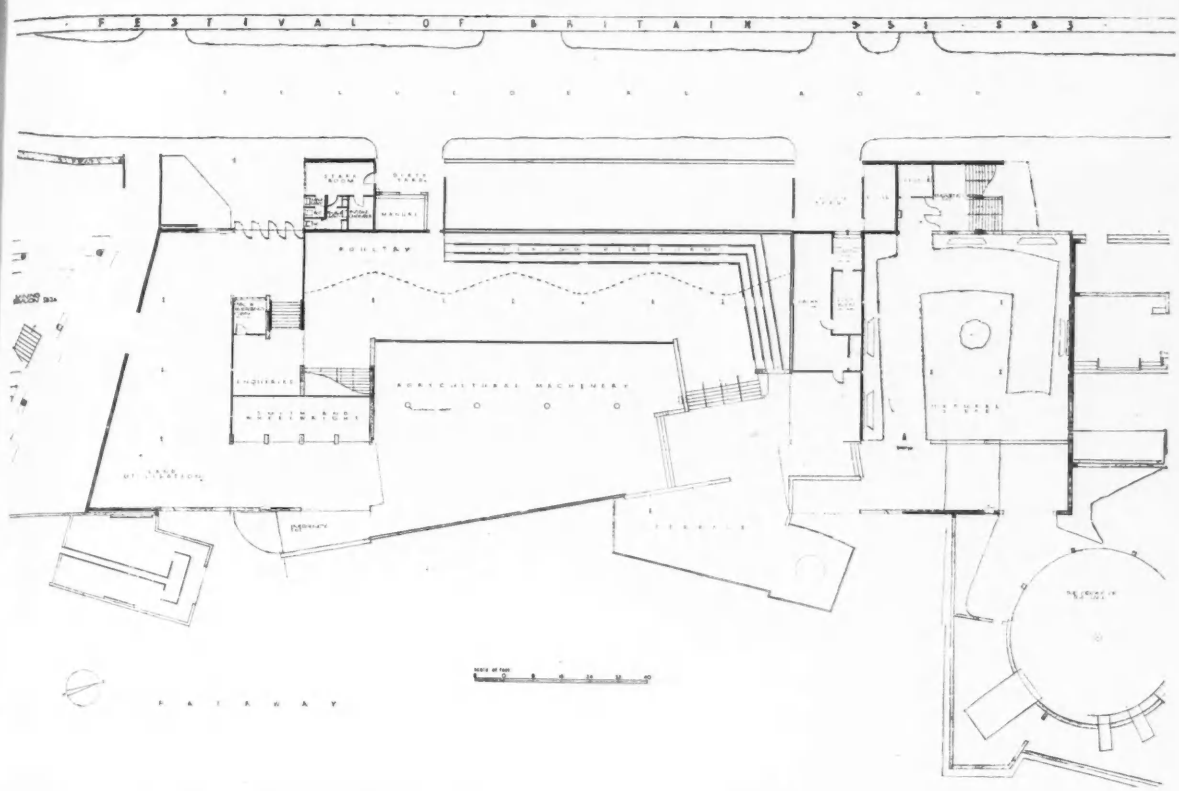
(*b*) the reception and happy discharge of foot-weary visitors—many of whom already drugged into semi-conscious amazement by *pièce* after *pièce de résistance*; and

(*c*) the structural design to clothe the space needed for both the above, using materials and construction which may be unsuited to permanent building.

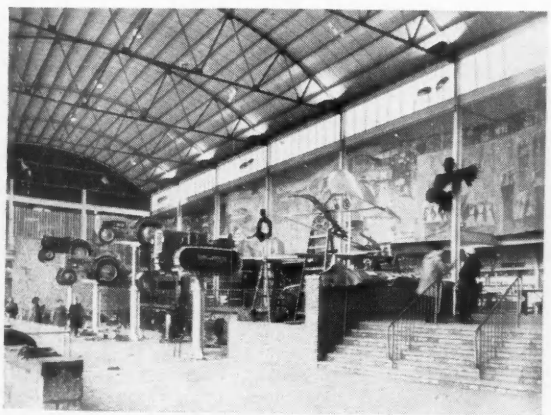
In a walk round the exhibition, it is noticeable that these basic principles have been adequately honoured. Visitors will find that the key block plan in the catalogue sold at the entrances indicates the position of pavilions, restaurants, cafés, exits, etc., with a suggested track plan. But whatever course is taken, there are no long culs-de-sac or tunnelled corridors to impede the progress of fast-moving spectators.

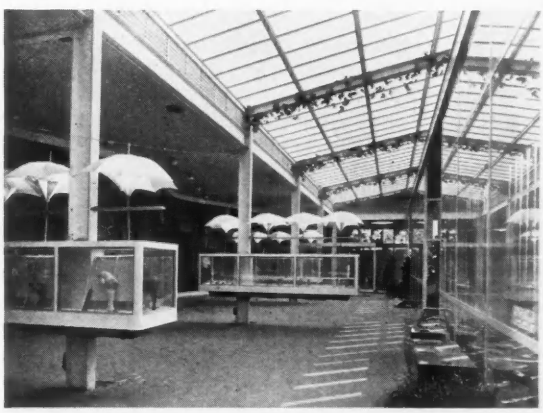
If one enters from the Chicheley-street Gate adjoining the end of the County Hall, the turnstiles, hooded with an elegant V-section canopy, discharge to a broad concourse, flanked on the east by the Information and Post Office. This is a long gallery block open along

THE NATURAL SCENE. First-floor gallery. Architect: Brian O'Rorke, A.R.A. Display Designer: F. H. K. Henrion



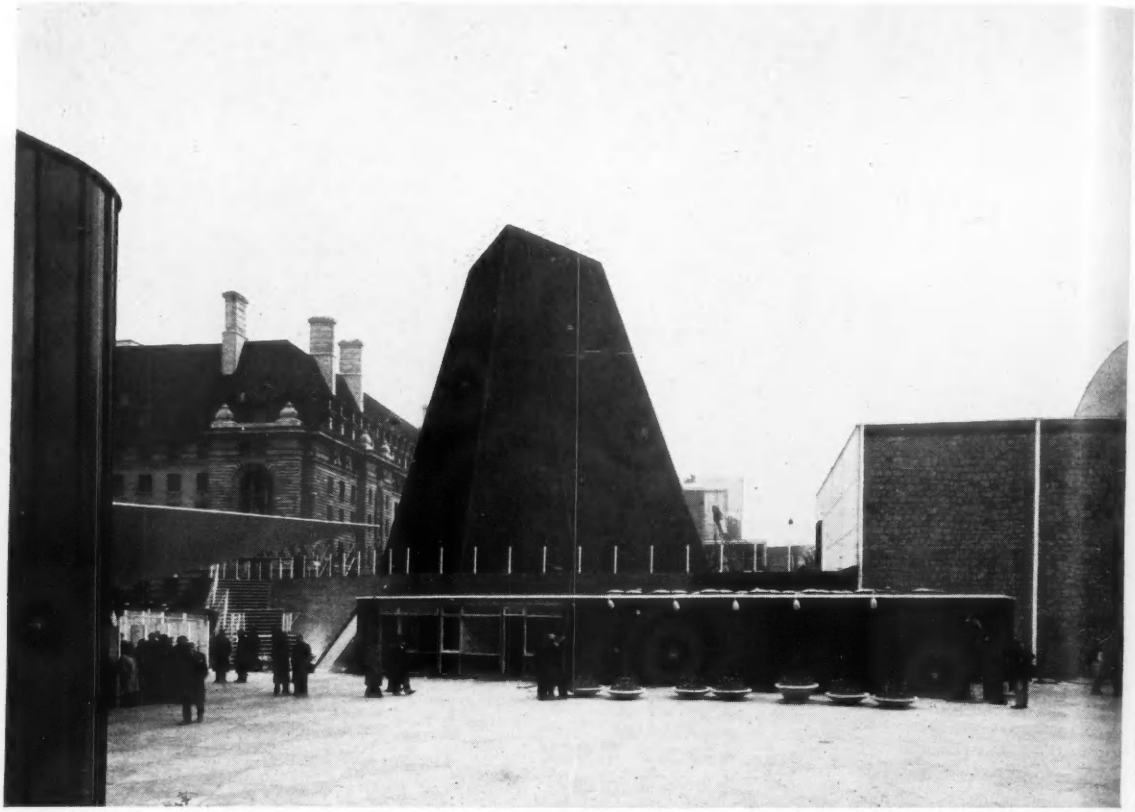
THE NATURAL SCENE AND COUNTRY PAVILION. Ground-floor plan. Below : View at ground floor (left) : First-floor gallery. Architect : Brian O'Rorke, A.R.A., F.R.I.B.A. Display Designer : F. H. K. Henrion





the concourse and backed by an attractive tubular steel screen 60 ft. high on the York-road boundary. The screen is covered with rectangular canvas windjammer sails in louvred pattern and most decoratively grouped in colour. Three gaily designed hexagonal information kiosks dovetail neatly into the Post and Telegraph gallery and are linked with the concourse by foot-bridges over shallow pools. At the north end is the Fairway café, grid roofed in post-tensioned concrete and, beyond, the colourful Waterloo Station Gate. From here the view opens to the broad main piazza open to the river. We commence at the south-east corner of the piazza, entering a collared wigwam which begins the upstream traffic with the adjoining Land of Britain Pavilion.

This pavilion displays the prehistoric character of Britain. Internally, the layout is contrived to give a sense of the remoteness it depicts. An ice blue, indirectly lit saucer-dome crowns the central hall which is pivoted on a tall, rock-crusted totem dipped in pale green light. On the walls the story is displayed in deep pictorial screens widely spaced. On one wall



MINERALS OF THE ISLAND, showing, on right, part of the Country Pavilion and, left, the Chicheley-street entrance canopy. Architects : Architects' Co-operative Partnership. Display Designer : Beverley Pick

hangs a dramatic mural by Graham Sutherland. In this pavilion, materials and wall finishes are subtly changed from hard plaster to rough cast and rubble : from wallpaper to mosaic. Externally, the scale is dwarfed with a cave-dwelling emphasis. A small Martello tower surmounts a dapper little rock garden which falls down to the main concourse. The main entrance to the pavilion is rather uninviting and could have been given more emphasis in this important position.

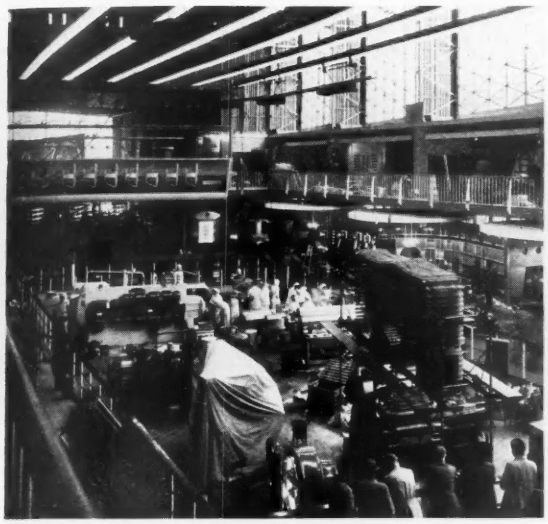
THE COUNTRY PAVILION

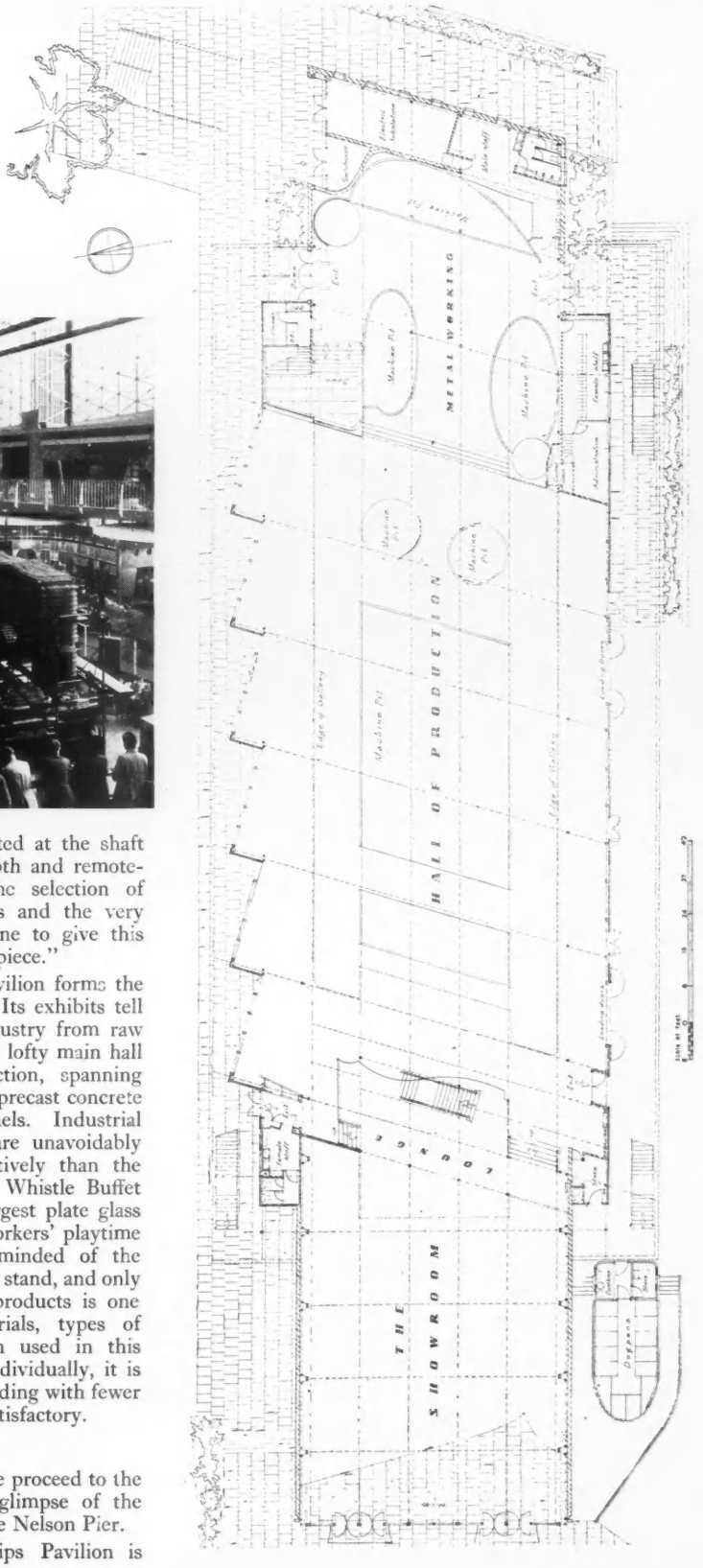
From the " Land of Britain " we move through the Natural Scene to the Country Pavilion. In an attractive setting, this displays rural life and craft, agricultural tools and equipment, forestry and plants. The main structure is well chosen—a Dutch barn shell about 60 ft. high, open to the east. The internal west wall is covered with a series of delightful murals depicting aspects of rural life. Apart from livestock, the largest exhibits displayed consist of four agricultural tractors on hydraulic lifts which move up and down dismally for no particular reason. One feels a larger and more dominant central motif would have given the tall, balconied hall more scale and importance. There is a refreshing contrast as we move from the hall to a spiral ramped stairway at the core of which is an immense plaster property tree, snow white and ivied in dark green. At its roots are carpets of bluebells and lilies of the valley. We climb the ramp to the solo accompaniment of thrush and nightingale, broadcasting from loudspeakers. On the walls are a series of framed glass showcases with photo-mural backcloths, well lit, displaying woodland flowers, insects and birds in wild country settings. On the first floor we move to a long gallery where an undulating wall provides an admirable setting for a continuous screen of hand-loom tapestries and fabrics in a delightful range of colours. Low, broad, cantilevered showcases, topped by umbrellas, divide the gallery into sections. On the west wall the continuous glazing is broken by vertical green canvas slats which effectively diffuse the light. The decorative treatment, variety of attractive finishes and the concentric ribbed lighting of this pavilion is most impressive.

A REAL " EXHIBITION PIECE "

Before moving to the Power and Production block, one is invited to inspect the small colliery exhibit described as the Minerals of the Island Pavilion, where the location and extraction of coal is described. On entering this black monument, one descends partly below ground level and at once the mining chapter of the story is unfolded. One sees some of the miner's tools and equipment. A tetrahedron pit-shaft rises from the centre, and winding, ramped galleries take us skywards up the dark funnel. The pit-shaft effect is rather spoilt at its summit by a large area of natural daylight. Had the aperture been coned to a false

POWER AND PRODUCTION BUILDING. Architects: G. Grenfell Baines, F.R.I.B.A., in collaboration with H. J. Reifenberg. Display Designers: Warnett Kennedy and Associates. Below: View of interior from the gallery. Right: The ground plan





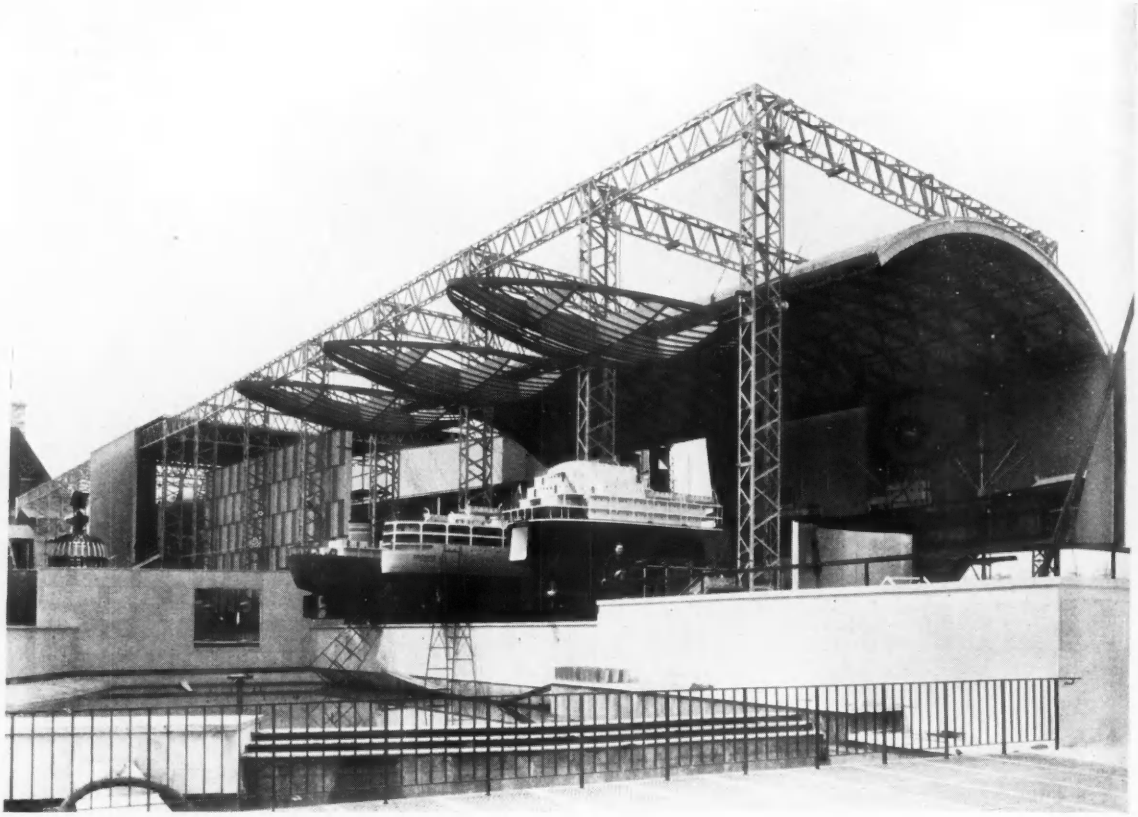
perspective and a glazed "eye" inserted at the shaft summit, an effect of more visional depth and remoteness would have been attained. The selection of materials, dramatic lighting of models and the very realistic reproduction of scenes combine to give this pavilion the spirit of a real "exhibition piece."

The large Power and Production Pavilion forms the southern boundary of the exhibition. Its exhibits tell the story of British manufacturing industry from raw materials to the finished product. The lofty main hall is in welded tubular frame construction, spanning about 100 ft., sheathed with very large precast concrete slabs and vertical ribbed asbestos panels. Industrial machinery exhibits in large number are unavoidably noisy and less easy to display attractively than the exhibits in other pavilions. Even the Whistle Buffet refreshment room, protected by the largest plate glass window in the world, has the din of workers' playtime in an industrial canteen. One is reminded of the mechanical inferno of a Castle Bromwich stand, and only in the showroom displaying finished products is one relatively quiet. A variety of materials, types of construction and finishings have been used in this pavilion, and, interesting as they are individually, it is questionable whether a more simple cladding with fewer exhibits would not have been more satisfactory.

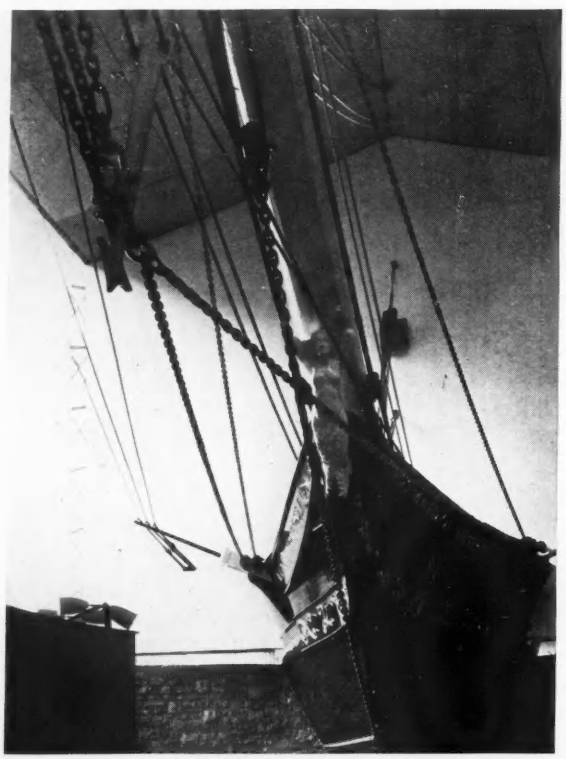
"SEA AND SHIPS"

At the riverside end of the pavilion we proceed to the Sea and Ships Pavilion with only a glimpse of the exciting lines of the '51 Bar adjoining the Nelson Pier.

The architect of the Sea and Ships Pavilion is

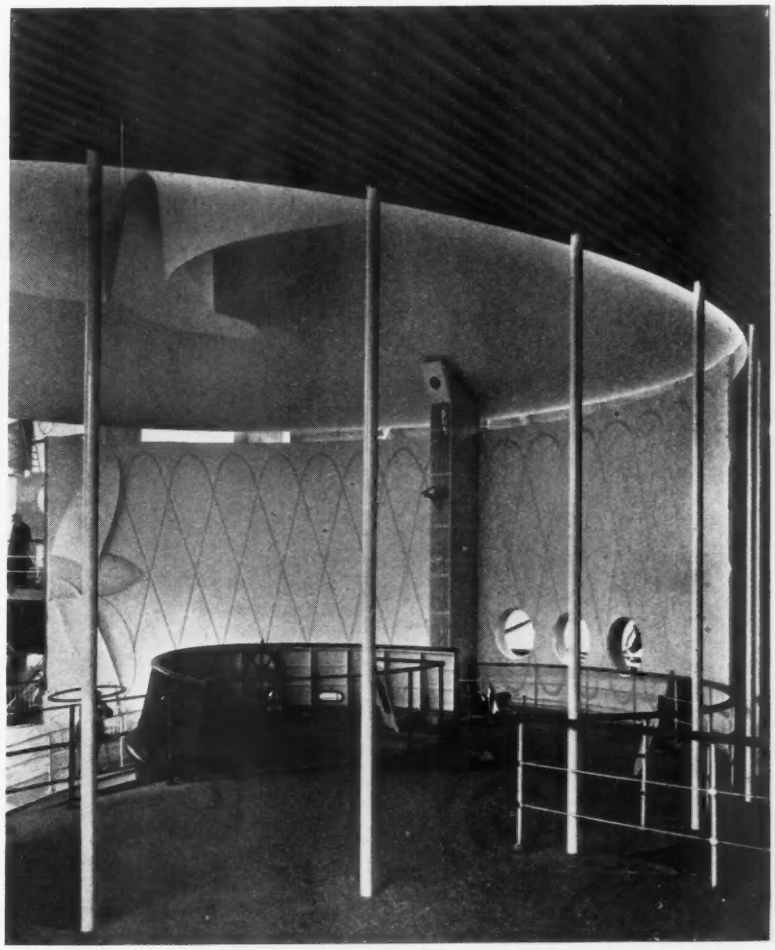


SEA AND SHIPS PAVILION. The Shipbuilding section, from the Fountain Lake. Below: The "Maid of Thermopylæ," in the Historical Section. Architects: Basil Spence, O.B.E., F.R.I.B.A. and Partners. Display Designers: James Holland and Basil Spence

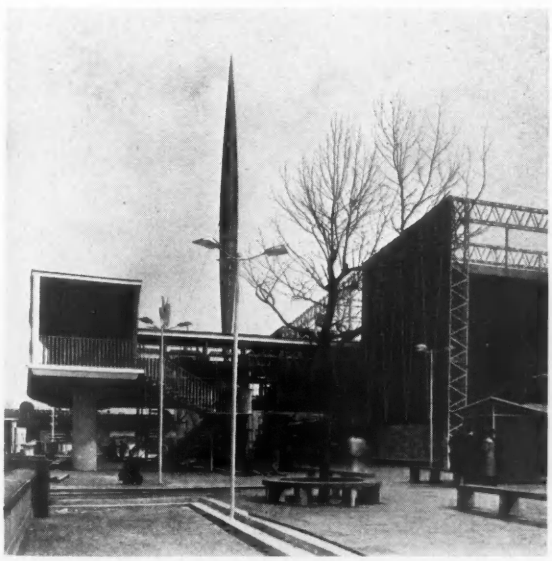


lucky in having more spectacular subjects to display. From turbo jet engines to ships' fittings and tackle, we are shown the triumphs of our shipwrights and marine engineers. The exhibits are not herded together or secondary to the architectural design. Here the exhibits are given pride of place, forming the substance of orderly planning. The layout is shipshape with a series of gangways, ramps and companionways, so that the pages of the nautical story are constantly changing as one moves from one section to another. Parts of tall ships built to full size are introduced in the galleries. In the entrance hall one is greeted by the prow of "The Maid of Thermopylæ," firm and gleaming with fresh paint in green, gold and white. She is backed by a wall of large photo-murals showing a panorama of East Indiamen and steamships of the line. Marine engines and marine shapes are subtly welded into the architectural treatment and finishes. An indigo matt finish on walls makes an admirable backcloth for showing off the complicated machinery of a marine oil engine exhibit. A cupola crowning a ramped staircase has a ship's propeller in fibrous plaster. The propeller blade motif is continued in bas relief on the plastered walls of the circular ramp which flows up to the stern of a tug, complete with steering wheel. Beneath, at the base of the ramp, the propeller turns slowly in a pool of water.

The main block, displaying propulsion and shipbuilding, is in light steel construction of continuous Portland frames with asbestos and aluminium wall cladding. The roof of the "special ships'" hall is in pressed steel



SEA AND SHIPS PAVILION. Propeller Hall. Below : View towards south end of Pavilion, with Skylon in background



Lamella, covered in yellow canvas. The halls are partly open and linked by the ramps and ribbed steel companionways. Levels in the internal gallery have been designed to fit the exhibits, but at one passageway we are allowed only 6 ft. 6 in. headroom. This perhaps carries the naval headaches of " 'tween decks " a little too far.

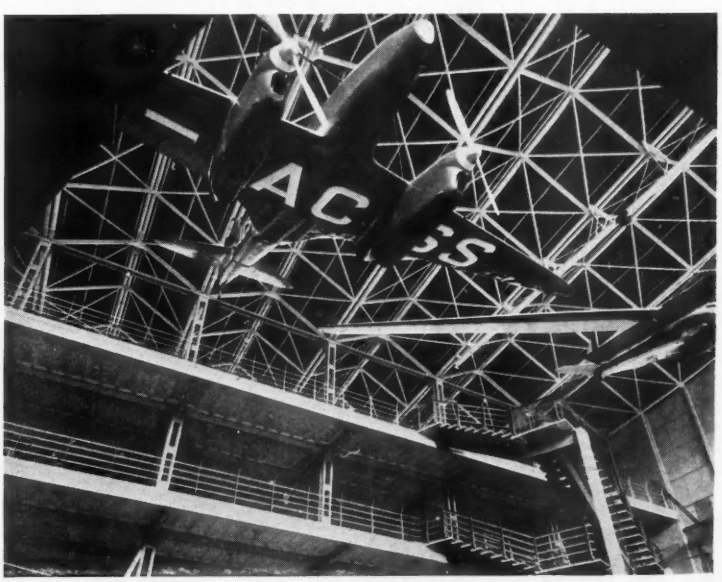
Externally, the pavilion blends effectively with the Dome of Discovery and the adjoining Nelson pierhead. When viewed from the Skylon base it conveys the great depth and character of ships' stocks in their yard. On the long, blank wall facing the river is a sculptured group by Charoux, depicting " The Islanders." Sculptural emphasis is possibly needed for an architectural focus at this point, but the group of rather flabby landfolk appears heavy and incompatible with the warmth and reality of maritime display we have just viewed within.

TRANSPORT AND COMMUNICATIONS

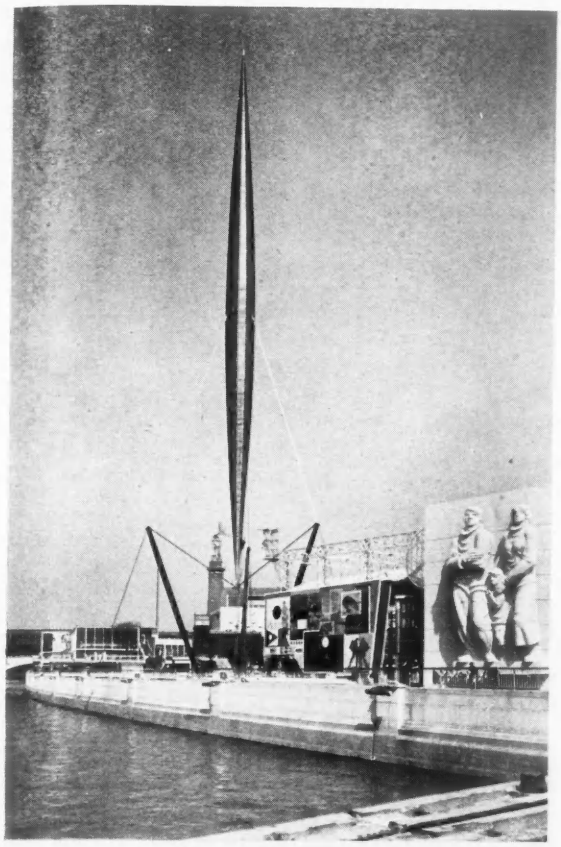
Facing the main concourse and backed by Hungerford Bridge is the large Transport and Communications Pavilion. The exhibits display locomotives and railway equipment, road vehicles and aircraft of all types, sea

Exterior view

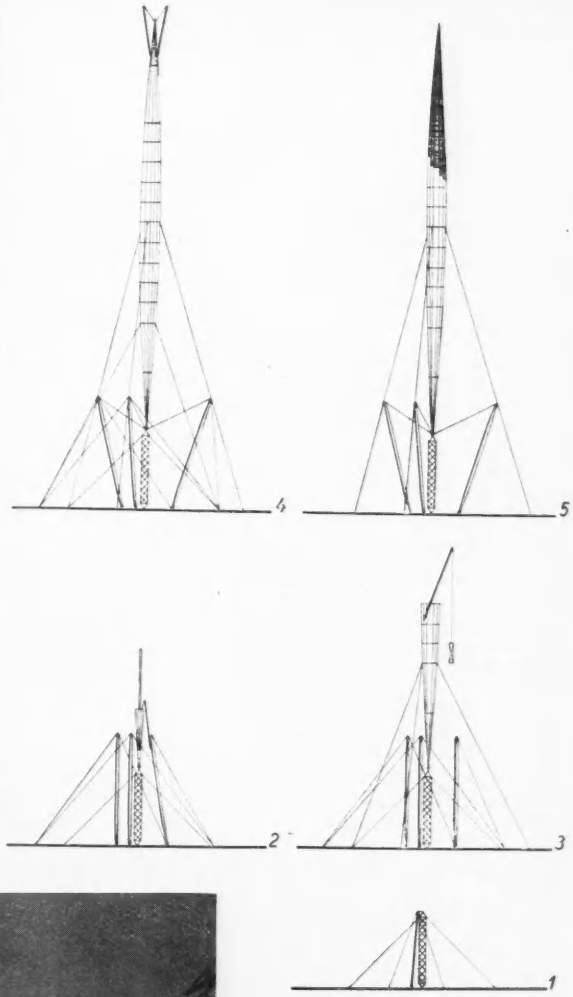
THE TRANSPORT AND COMMUNICATIONS BUILDING. Architects and Designers : Arcon



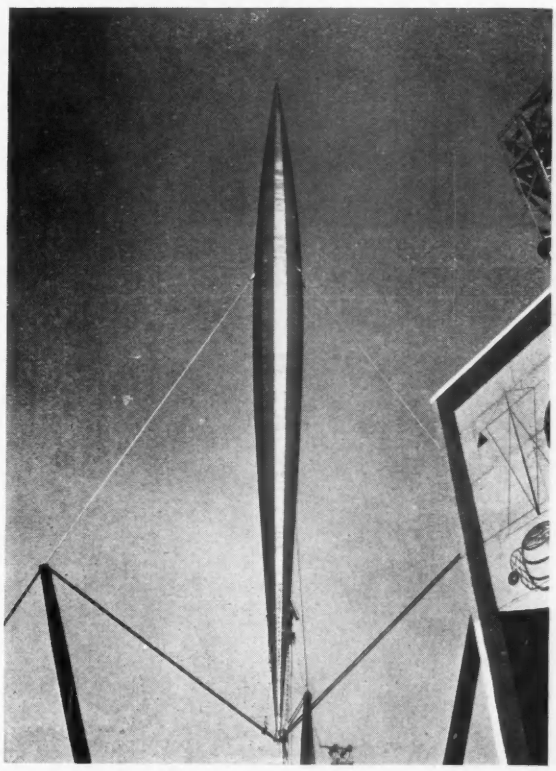
View showing galleries and roof



THE SKYLON, with Siegfried Charoux's sculpture, "The Islanders," and John Hutton's mural

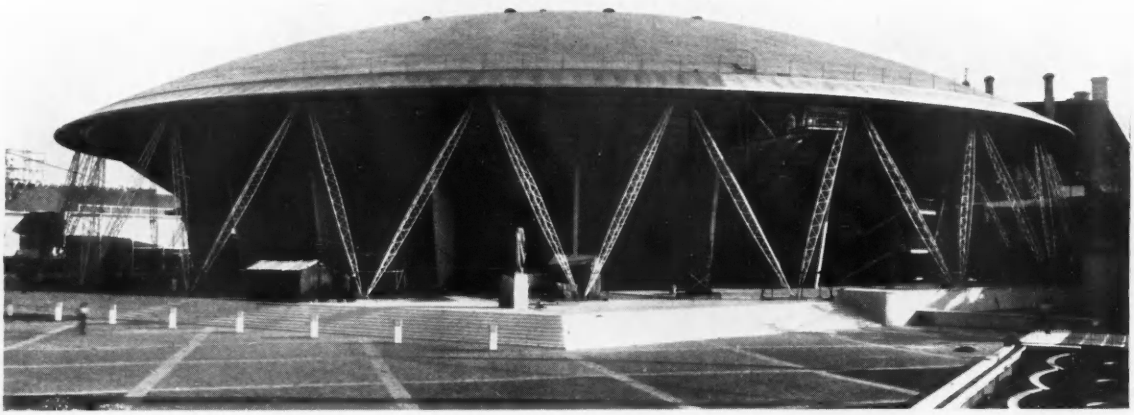


Stages in erection of the Skylon. The feature, 250 ft. high, is suspended 40 ft. above ground level



View of Skylon from the ground. It is 15 ft. wide at the centre of its height

THE SKYLON. Architects: Powell and Moya, A.A.R.I.B.A. Consulting Engineer: Felix J. Samuely, A.M.Inst.C.E.



THE DOME OF DISCOVERY. Architect: Ralph Tubbs, A.R.I.B.A. Consulting Engineers: Freeman Fox and Partners

transport and a section showing our development in communications, radar, etc. The pavilion is planned in one block to allow for easy circulation through the five separate sections of rail, road, air, sea and communications; but each section is skilfully designed to set off its exhibits to their best advantage. The locomotives are in rail sidings, the cars in a ramped garage and the aircraft in a hangar. At concourse level is the Railway section well displayed with locomotives on the terraces partly in the open. In the Road Transport section, saloons and sports cars are shown on a broad ramp to the first floor. Here we arrive at a magnificent gallery overlooking the concourse, with the well of road vehicles beneath. This gallery displays aero engines, sea transport and motor engines, but the most impressive exhibits are the aircraft and aero models suspended from the roof at the hangar's end. In fine weather the whole of this glass wall, panelled in folding roller track, is open to the concourse. Communications are divided into four floors at the east end, each connecting neatly with its relative transport section of air, land or sea.

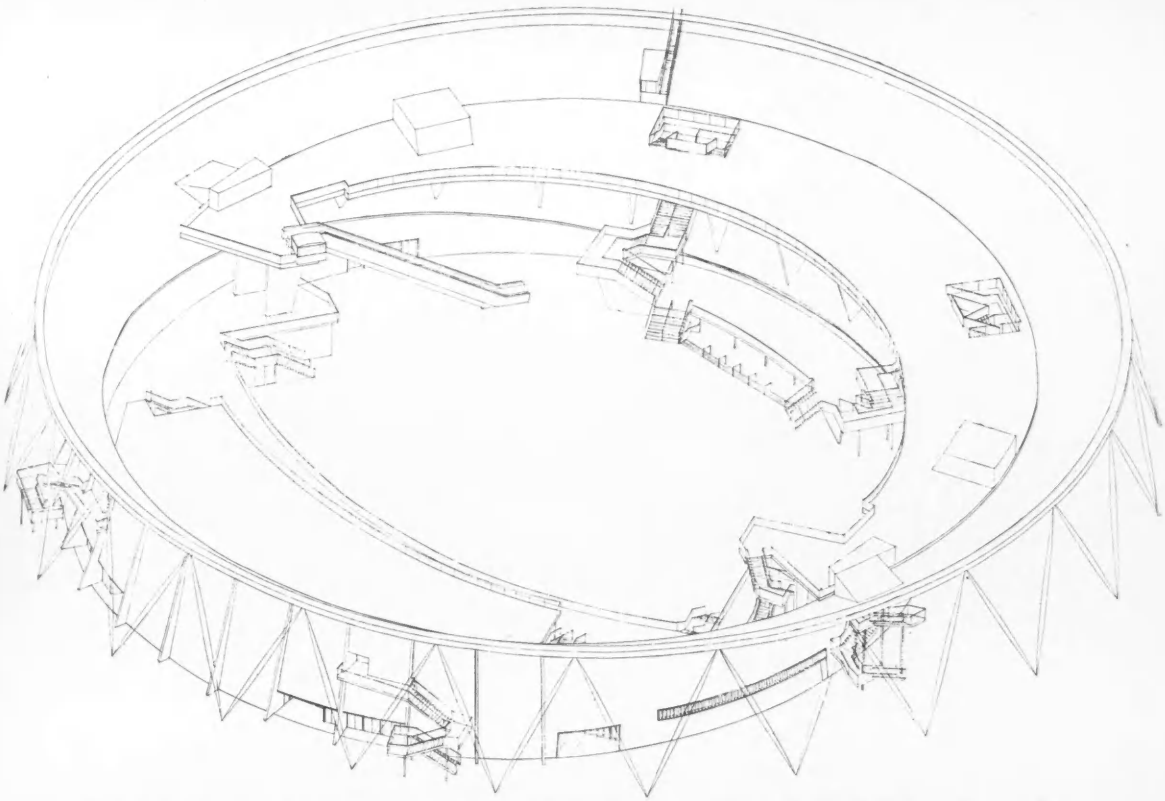
The structure is steel frame with asbestos roof and wall cladding. The heavy castellated girders and latticed vertical masts in the aircraft hangar act as an attractive foil for the streamline of the aircraft exhibits. Details are full of interest and character. Two staircases are designed in reinforced concrete slabs with treads finished in terrazzo, bolted to a central concrete spine beam. The glazing is well designed and every advantage of lighting considered. Finishes are colourful and suitable to the exhibit. In the interior of the aircraft hangar the asbestos ceiling is finished in Swedish blue with white painted ceiling joists and lemon-yellow masts. Both within and without, this pavilion expresses its theme with a dynamic elegance, and the variety of complicated exhibits are ingeniously displayed.

THE ADVENTURE OF THE DOME

Of all the exhibition structures on the South Bank, the Dome of Discovery has raised the most comments, complimentary and adverse. This is not surprising, however, in a nation composed almost entirely of art critics. First of all, with a 365-ft. span, it is the largest dome in the world, and, although it appears to squat modestly on the river front, the apex of this gleaming dome is nearly a hundred feet high. The dome construction is brave and adventurous. There is no monolithic flow from eaves to stanchion. Tubular steel latticed-struts end abruptly at the vast saucer's rim, where they carry a continuous steel ring girder supporting the aluminium dome. At ground level the struts diminish to a 2½-in. diameter steel pin, each with a capable stress of 31 tons. Internally, the construction is less adventurous. The galleries are a separate structure, finished with precast concrete beams on a radial supporting core.

Within, the scale is colossal, and gives a sense of Wellsian unreality. This particularly noticeable at the main entrance where one descends six or seven steps and then, having cleared the gallery soffit, ascends into the vast arena.

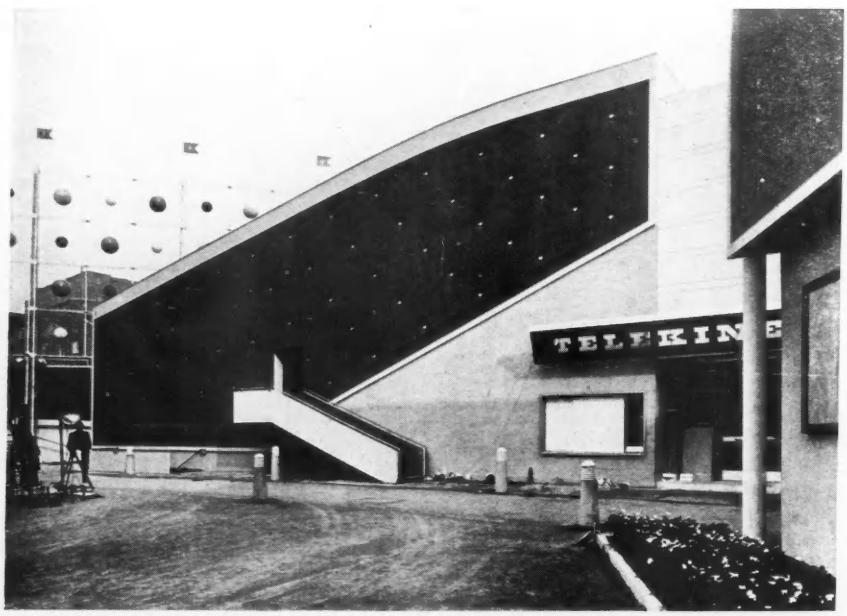
A panorama of countless exhibits tell the story of British achievements in the field of discovery and exploration. Effigies of Newton, Faraday, Darwin, Cook and Livingstone are shown. Nuclear energy is displayed, and new forms of equipment for survey, research and disease. British explorers are seen mapping the globe. The circulation round these thousands of exhibits is a difficult task and one feels that the track plan could have been simplified by one continuous spiral ramp rising slowly on the same eccentric plan. The escalator could have conveyed visitors to the summit and all exhibits would be visible



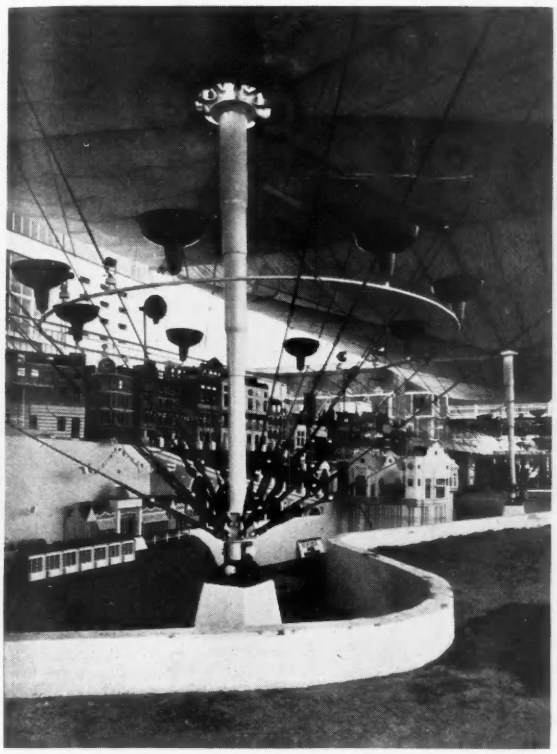
THE DOME OF DISCOVERY. Ralph Tubbs, A.R.I.B.A., Architect. Display Designers : Design Research Unit

DOWNSTREAM CIRCUIT. General view from Waterloo Bridge

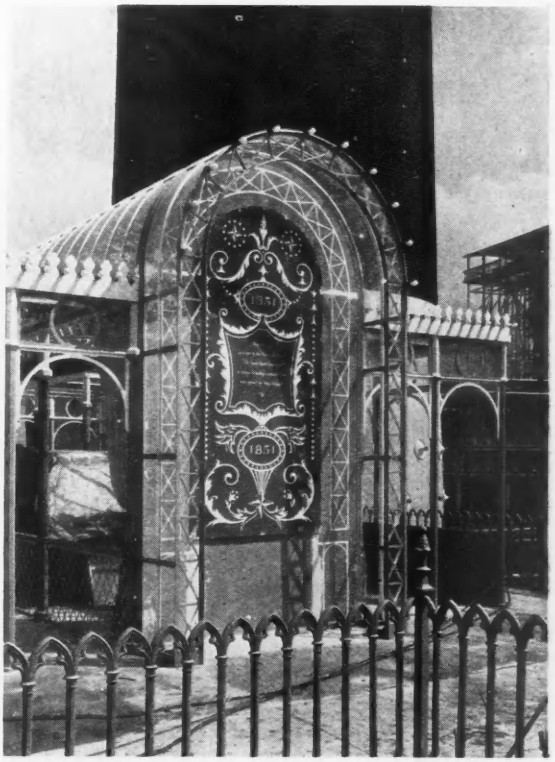
on the slow descent. Another minor criticism is the congestion of exhibits at ground-floor level. These exhibits crowd the centre of the arena and give the commonplace atmosphere of a Continental covered market, particularly when viewed from the lower galleries. Here and there one has to switch-back from one gallery to another by rigid flights of stairs which are hard on the tired feet and spectacle-laden faculties



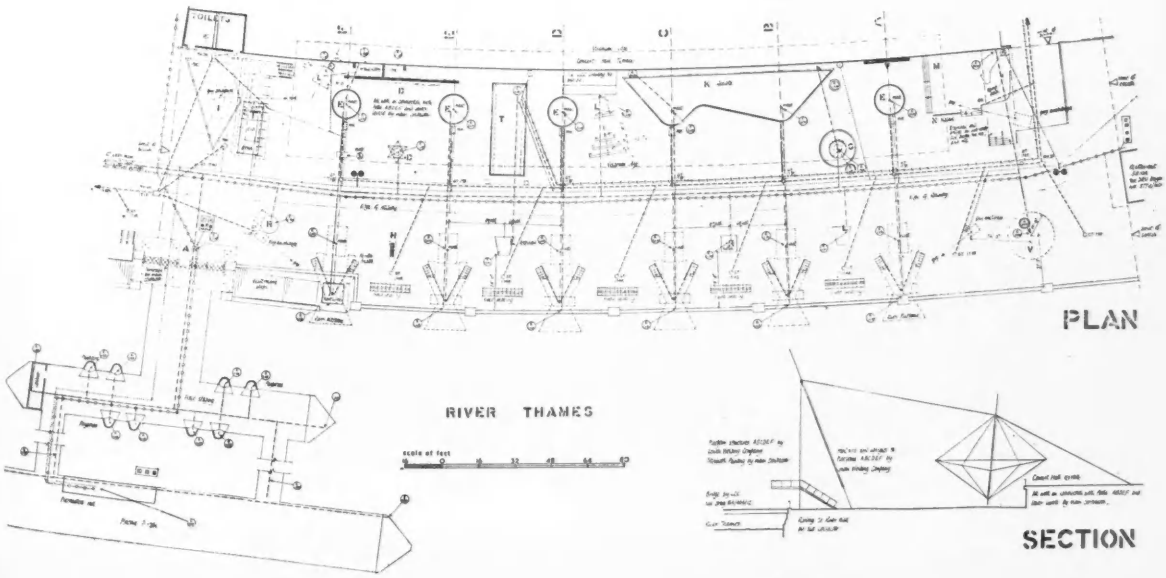
THE TELEKINEMA: Architect: Wells Coates, O.B.E., F.R.I.B.A.

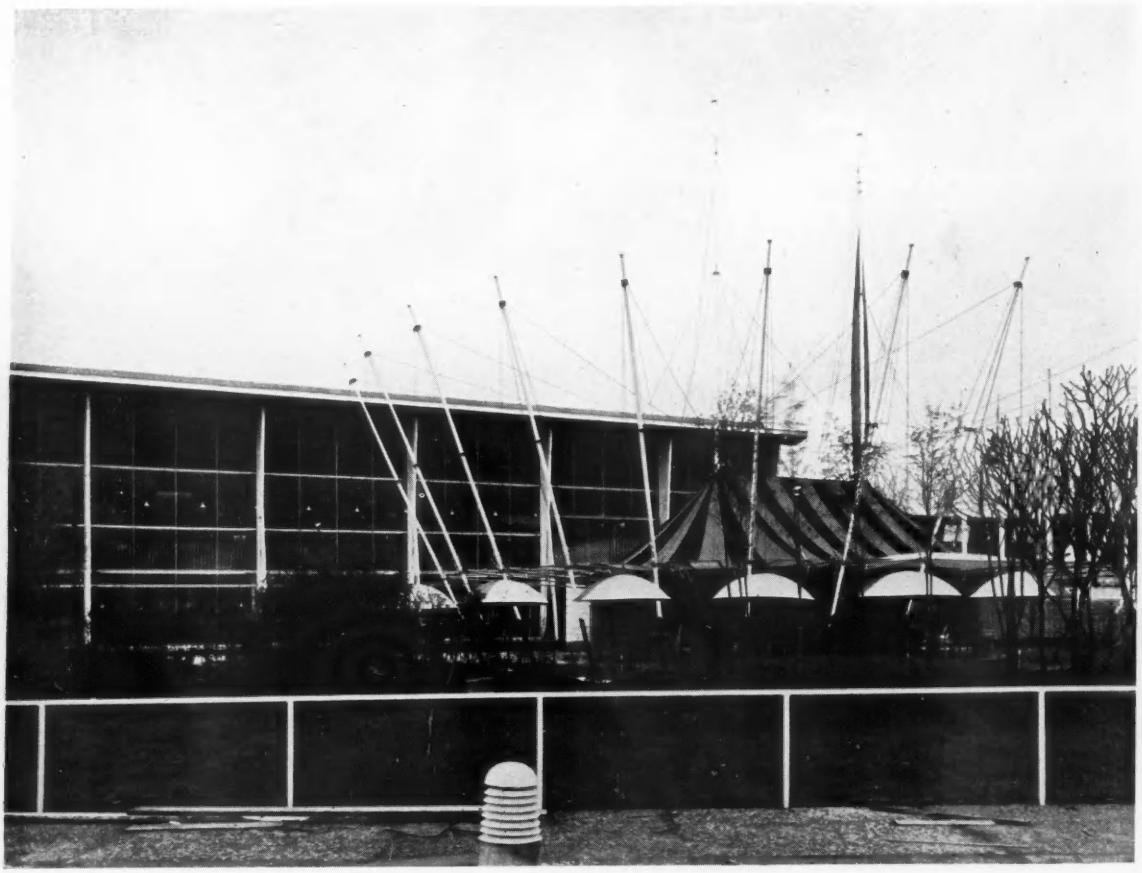


THE SEASIDE SECTION. View showing seaside and holiday resorts exhibits. Below: Plan. Architects and Designers: Eric Brown and Peter Chamberlin, L.&A.R.I.B.A.



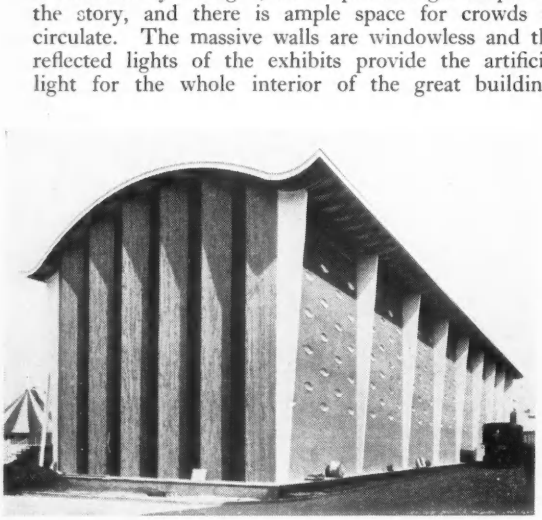
1851 CENTENARY PAVILION. The treatment of the Shot Tower and the layout of the sports area between the Shot Tower and the Sports Pavilion are the work of Hugh Casson, F.R.I.B.A. (Architect), and James Gardner, O.B.E. (Display Designer)



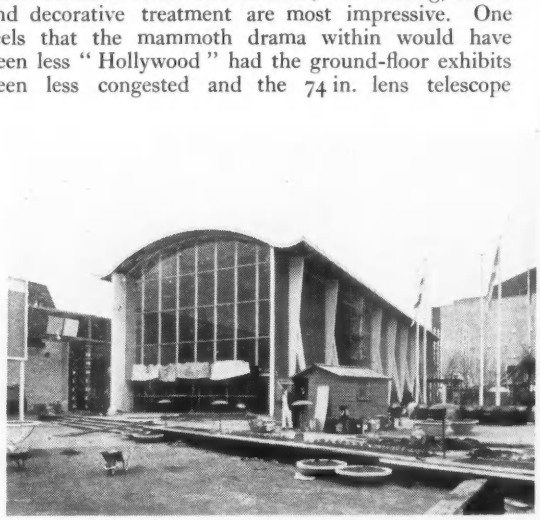


THE UNICORN TEA GARDEN, with Lion and Unicorn Pavilion (south front) in background

of visitors. In the galleries the murals and exhibits are beautifully arranged, each representing a chapter in the story, and there is ample space for crowds to circulate. The massive walls are windowless and the reflected lights of the exhibits provide the artificial light for the whole interior of the great building. The building makes a splendid use of contemporary materials in structure and finishes; the flooring, colour and decorative treatment are most impressive. One feels that the mammoth drama within would have been less "Hollywood" had the ground-floor exhibits been less congested and the 74 in. lens telescope

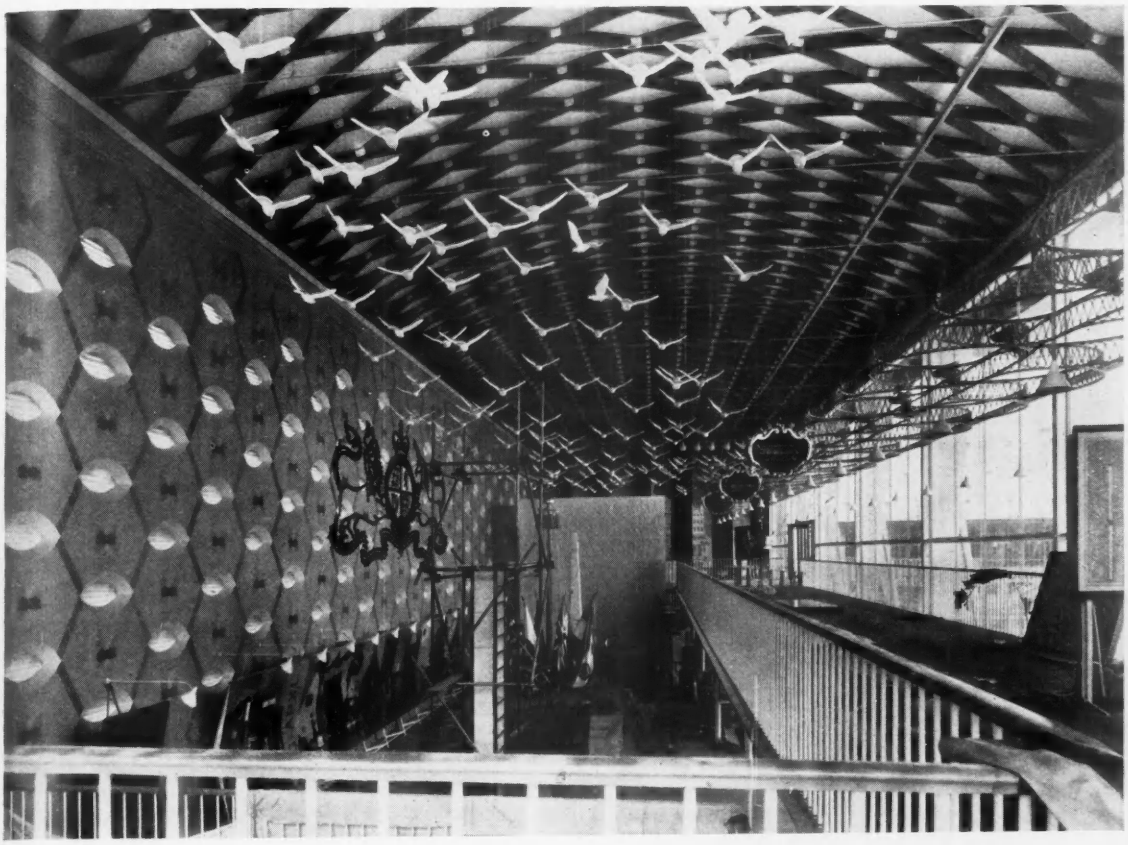


View from north-east



View from south-west

LION AND UNICORN PAVILION. Architects: R. Y. Goodden, A.R.I.B.A., and R. D. Russell. Display Designers: R. Y. Goodden, R. D. Russell and Richard Guyatt



THE LION AND UNICORN PAVILION. View from Gallery. Below: Mural at river end, by Edward Bawden

made even larger and centrally positioned as an altar for this vast Pantheon.

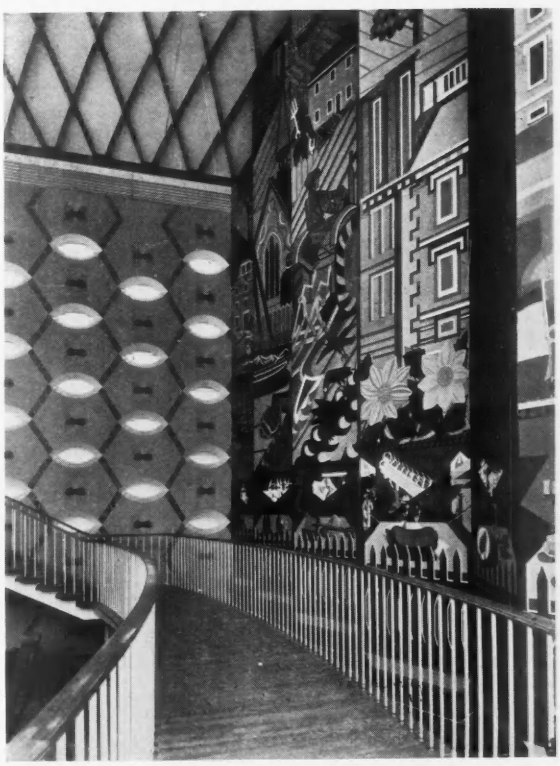
THE EXHIBITION SHOWPIECE

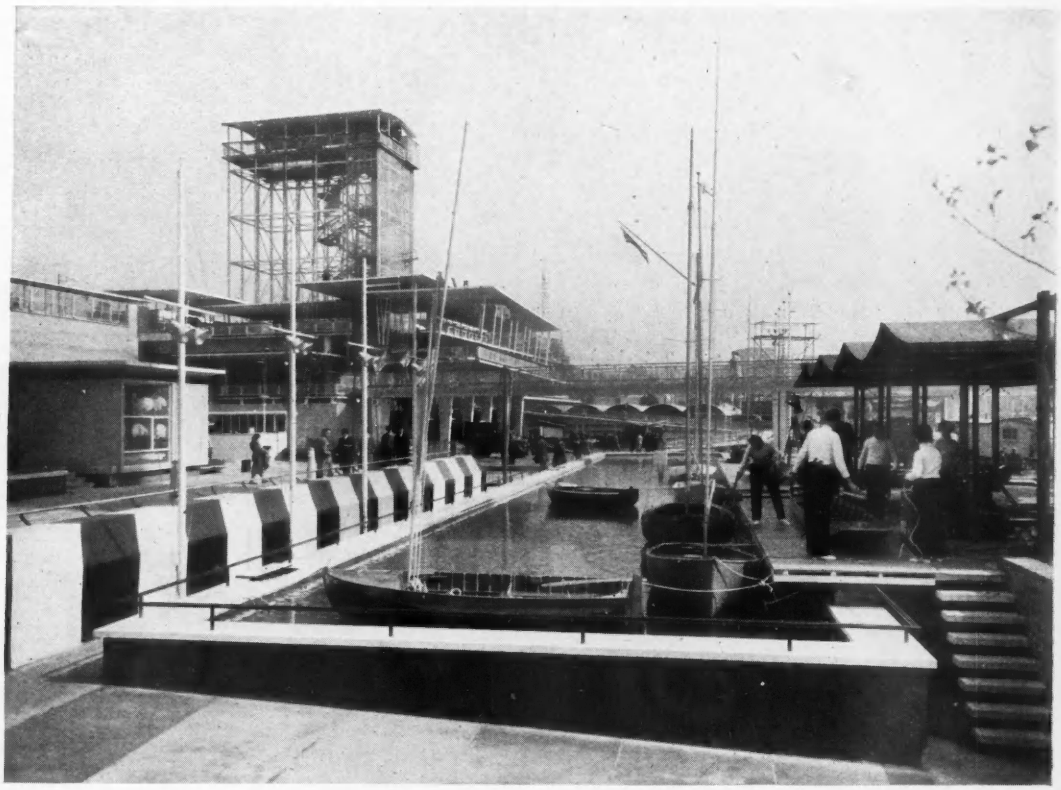
Outside, and blending magnificently with the Dome in scale and shape, is the Skylon. This is the showpiece of the whole exhibition. It is not visitable nor climbable (officially, at any rate) by the public; nor does it display exhibits. In design and construction, it is a delightful refinement from the very complicated to the very simple. The 250 ft. high body, parabolically tapering from a central 15 ft. to pointed ends, is suspended by three steel guys supported on three raking pylons taking the thrust. The Skylon is constructed in prefabricated steel angle-framed panels, welded and braced: the covering skin is of aluminium horizontal louvres which diffuse the internal tungsten lighting graded throughout its height. By day or night it floats 300 ft. into the sky in isolated fantasy. No matter from what angle it is viewed, it blends with its neighbours and background in unique simplicity.

THE DOWNSTREAM PAVILIONS

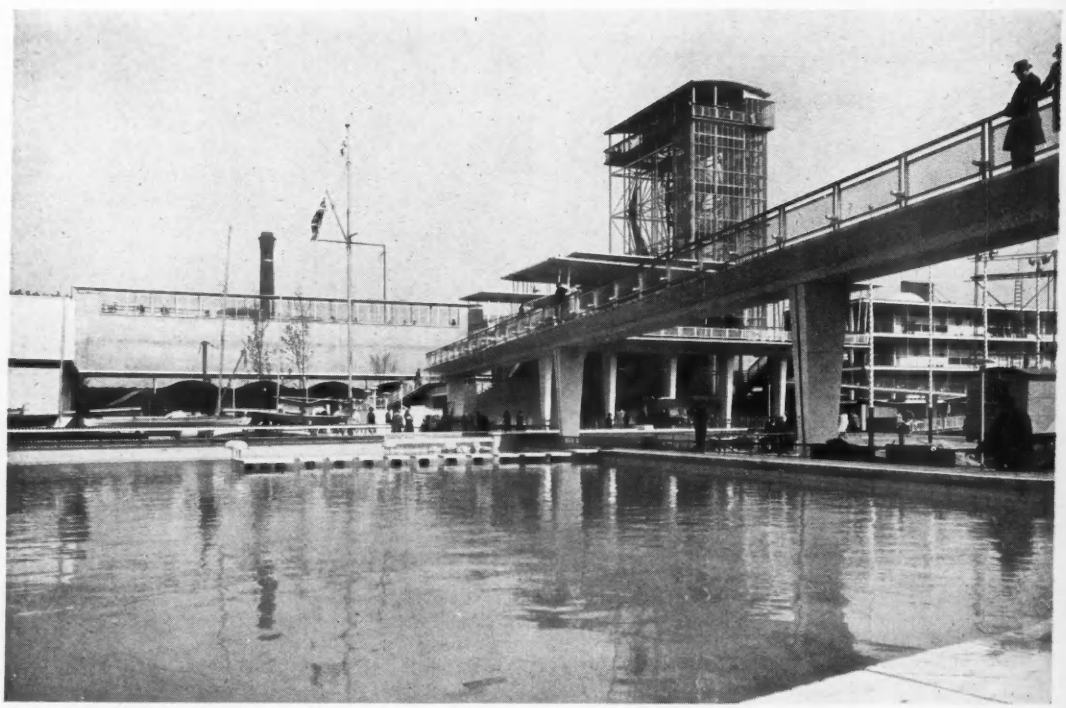
Downstream, mention must be made of the Lion and Unicorn Pavilion backed by Hungerford Bridge. Its exhibits illustrate the British character and tradition throughout our history with a select display of robes and uniforms, fabrics, pottery, glass, and furniture.

The pavilion is planned in great simplicity with a studied elegance in its detail and finishes. A rectangular hall is glazed on the north side to the full height facing

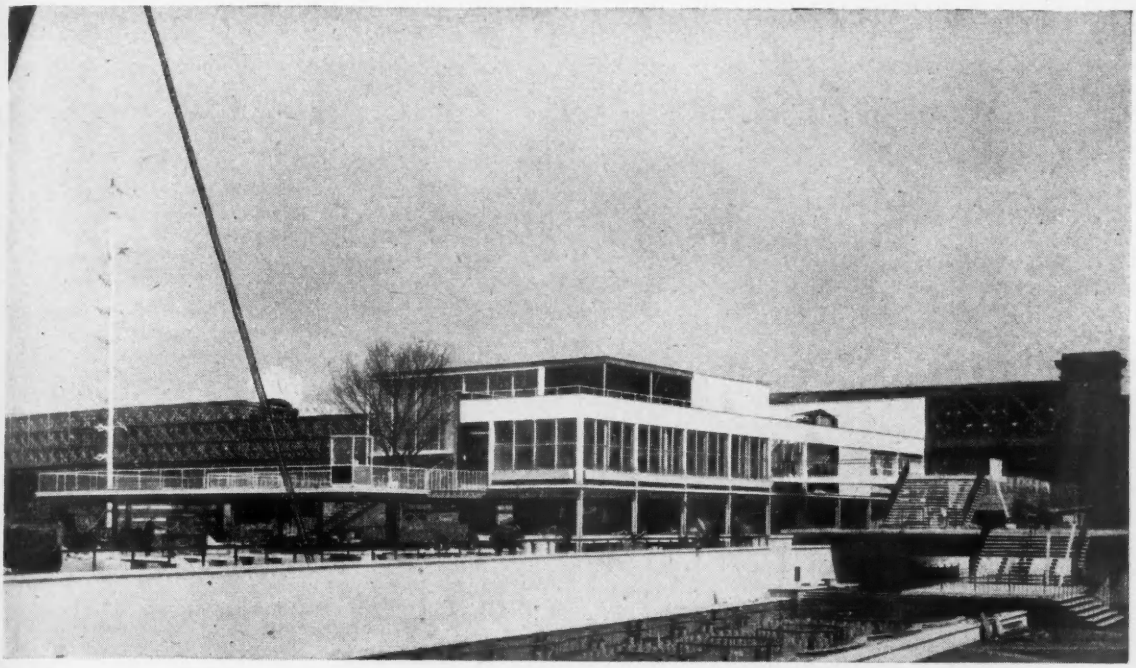


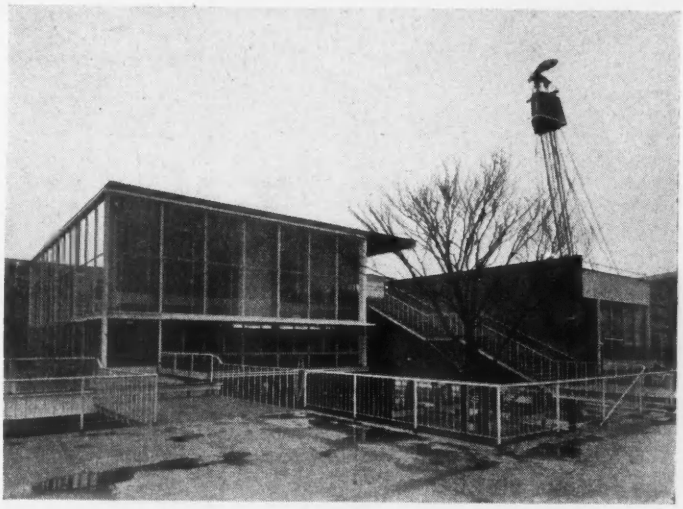


THE WATERWAYS, with Waterloo Bridge entrance in background

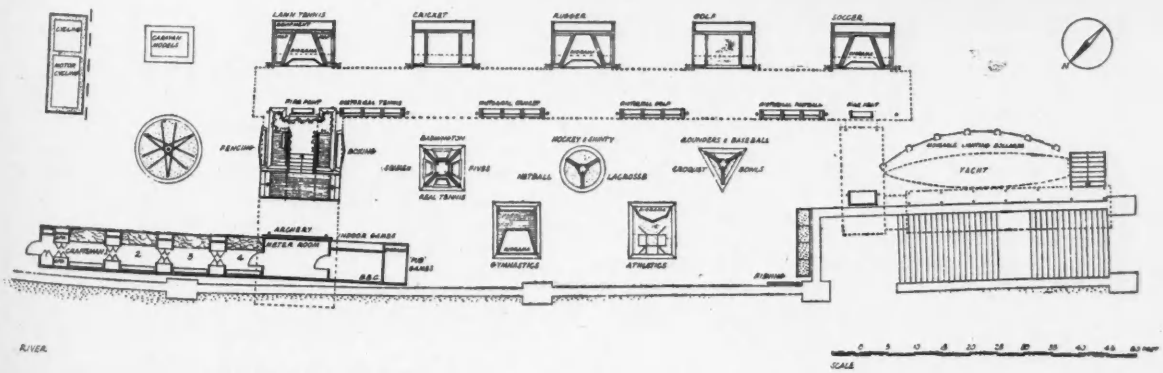


THE WATERWAYS, showing post-tensioned reinforced concrete bridge leading from Waterloo Bridge to Royal Festival Hall. Architects : Maxwell Fry and Jane Drew, FF.R.I.B.A.

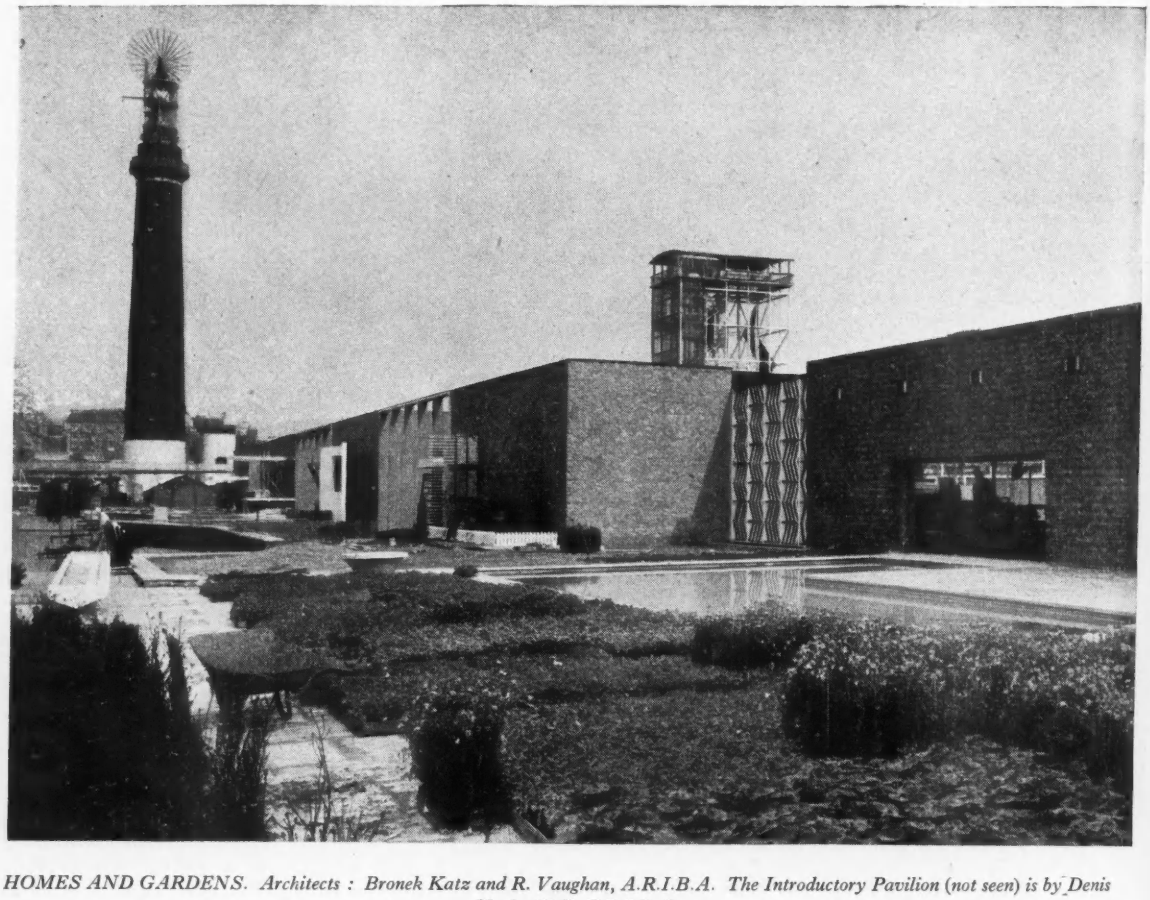




THE REGATTA RESTAURANT. Above: As seen across Fountain Lake. Right: From the terrace. To the right is the Radar Scanner above Transport Building. Architects: Misha Black, O.B.E., and Alexander Gibson, A.R.I.B.A.



SPORTS SECTION. Ground plan. Architects and designers : Gordon and Ursula Bowyer



HOMES AND GARDENS. Architects : Bronek Katz and R. Vaughan, A.R.I.B.A. The Introductory Pavilion (not seen) is by Denis Clarke-Hall, F.R.I.B.A.

a courtyard. A continuous balcony, connected at each end by teak-plank open stairs, overlooks the hall. Materials have been selected with care and imagination. A curved Lamella timber roof makes a handsome summit to the plastered walls and glass screen. A rough " masonry " wall, with incised inscriptions acts as a decorative backcloth in the hall itself. Bronze, fibrous plaster, wrought iron, aluminium, glass and teak are all used skilfully to accentuate the emphasis on craftsmanship. A series of murals contrast sharply with the perforated wall above. Emblems, chandeliers and sculpture are concentrated with rich intensity at selected positions. Under the high ceiling, white plaster doves sweep across at high level hopefully suggesting peace and freedom. At the foot of the stairs Tenniel's White Knight sits mounted on his steed.

CAFES AND " STREET FURNITURE "

Adjoining the pavilion, and opening to the court, is a graceful little café with a masted, tented roof in indigo and pink. This is one of the many attractive cafés and restaurants which spot the exhibition. Most of them are partially in the open and will provide the weary and thirsty with a welcome respite during their perambulation.

The South Bank street furniture throughout is worthy of comment. Seats, umbrellas, litter baskets, screens, kiosks and lamp-posts have been designed with refreshing variety and skill. The seats are comfortable but not relaxing : they are everywhere but only in small packets. Lamp-standards are limited, and the road and concourse lighting at night relies for its effect on the overspill from the intensely illuminated pavilions, halls and restaurants.

One must also congratulate the Festival's landscape architects on the admirable grouping of miniature gardens, pools, trees, shrubs and portable flower-beds with the pavilions and layouts. Over sixty trees have been transplanted to relieve the bare, derelict soil, and their planting and layout have succeeded in preserving open spaces without restriction to crowds. Water, too, has been charmingly used in pools and fountains which form part of the architectural surround.

In a memorable visit, one leaves the South Bank with the impression that at any rate the focal point of the 1951 Exhibition has succeeded architecturally and that in these few acres our heritage has been displayed with quality and pride.

C. St. C. O.

***The names of firms associated in the work on some of the more important structures are given elsewhere in this issue.

***Next week's issue of *The Builder* will contain a special illustrated article on the Royal Festival Hall.

REPLANTING SCHEME AT CAMBRIDGE

Dr. T. Sharp's Plans for St. John's College Grounds

OVER the last few decades the College grounds (which occupy some 40 acres at the northern end of the Backs) have suffered severely from the loss of trees by decay, storm damage and elm disease. In the last year or two it has become clear to the College that if the beauty of this part of the Backs is to be preserved for future generations it cannot be done merely by keeping diseased and mutilated trees standing until they fall down, and then planting new trees in their places: it can only be done by undertaking a comprehensive replanting scheme.

The Master of St. John's, Mr. E. A. Benians, M.A., Hon.Litt.D., writes: Having come to this decision, the College engaged Dr. Thomas Sharp, President of the Institute of Landscape Architects, to advise on what should be done and to draw up plans. On his advice a survey was first made of the grounds and a report obtained on all the trees which still remain in the grounds. It was clear from this survey that there were many trees so diseased that they might fall or be blown down at any time, and that these trees should be felled. They included most of those in the remains of the avenue leading to Queen's-road and in the continuation of the avenue in the playing fields on the west side of the road.

The Proposals in Detail

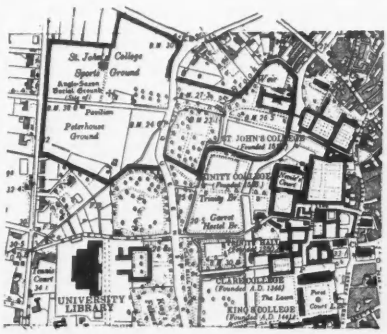
Work on Dr. Sharp's scheme is now about to begin. There will be little alteration to the grounds along the side of the river and in front of New Court: a few trees must be removed and some new trees will be planted. In the ground at the back of New Court, now an orchard, where many poor spindly trees grow along the stream, making a heavy screen immediately in front of the windows of the new Magdalene building, the orchard and the screening trees will be felled and a new lawn garden made.

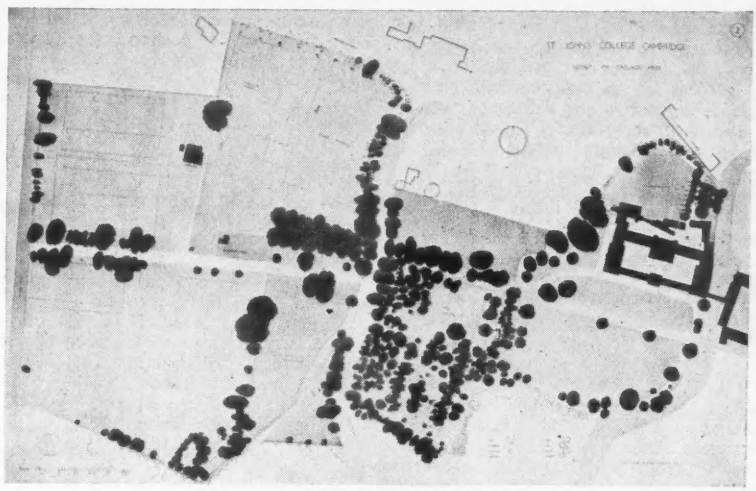
In place of the former elm avenue leading to Queen's-road gate a new avenue of limes will be planted. Behind each line of trees a trimmed yew hedge will give both additional definition to the new avenue and privacy to the gardens on either side. In the present Fellows' Garden, the Wilderness, on the south side, only work necessary for the rehabilitation of its essential character will be undertaken: a few new trees will be planted to replace the comparatively few trees to be felled, and these will be of light-leafed species so that the flowering season on the woodland floor may be extended by adding new suitable plants.

The ground on the north side of the avenue is at present open orchard. Here a new garden will be made, at once complementary to the Wilderness and in contrast with its informality. This garden has been designed so that little maintenance will be necessary, and the planting (which has been specially devised by Miss Sylvia Crowe) will chiefly be of a great variety of flowering shrubs. The grounds on the west side of Queen's-road, which are the College playing fields, have never been landscaped as a whole. They consist of several railed-in enclosures cut across by an old driftway. The groundsman's house and garden obtrude into the open area; and the continuation of the avenue from the main grounds on the other side of Queen's-road, though it forms a very striking feature from those grounds, has an unsatisfactory effect within the playing fields themselves since it is unsupported by adjacent planting and looks artificial and somewhat incongruous. In short, the landscape here is hardly organised at all, and the problem is one of re-design more than of rehabilitation.

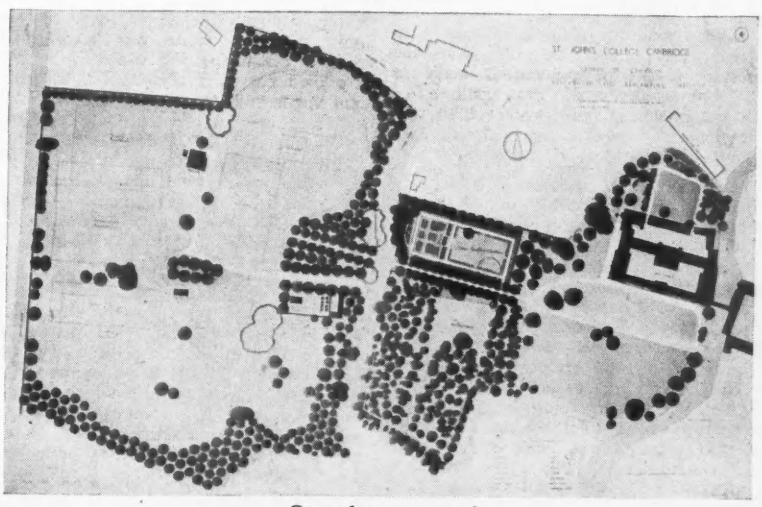
The new plan provides that all the interior fences should be removed and the present sub-divisions united in a landscape that will "flow" through the various parts, and at some future time the groundsman's house will be removed from its near-central position. The replanted avenue will be backed by new planting so that it will be a cut between a bank of trees instead of an artificially imposed feature. Some fairly heavy planting will be undertaken on the boundaries for the purpose of landscape enclosure, and occasional groups of trees or single-standing trees (their positions determined partly by a changed layout for the playing pitches) will be planted in the interior space to create a parkland effect.

The main trees to be planted will be lime, horse-chestnut, tulip trees and balsam and black Italian poplar with some hornbeam, beech, sycamore, plane and ash, and an occasional ilex. To minimise the period before the maturing of the new landscape, the new trees planted will be of as great a height as is consistent with their probable survival — 15 ft. to 17 ft. for the avenue limes, and 10 ft. to 12 ft. for the remainder, except such species as the tulip trees, which need to be planted much smaller. Work in planting and making additional gardens should be completed by April, 1952.





Grounds as at present



Grounds as proposed

HISTORY OF THE SOUTH BANK

An Exhibition at County Hall

THIS topical and happily inspired exhibition was opened on May 9 by Miss Peggy Ashcroft, well known for her work at the Old Vic theatre, in a graceful speech. The gathering was presided over by Mr. J. W. Bowen, chairman of the London County Council, who also contributes a foreword to the excellent illustrated handbook of the exhibition, in which he remarks that "the South Bank, 'London over the Water,' as the Cockneys call it, has for many years been the Cinderella of London districts. Because of the marshy nature of the ground, it was not built up until the 1830's, and then, within a few years, most of its amenities were destroyed by the rush of industrialisation and the coming of the railways."

Mr. Bowen then records the intention of the L.C.C. "to stimulate the improvement of this bank," mentions the building of the County Hall in 1906-33, as well as the Festival of Britain, and states the wish of the council to make the South Bank "as attractive and pleasant to live and work on as its opposite neighbour." He concludes: "In this movement our smaller exhibition will play its part by rekindling interest in the history, the personalities and the buildings and gardens of the past, and helping to create that civic pride without which all the efforts of our planners for social good and visual beauty are in vain."

The handbook (price 1s.), well illustrated with photographs and two-colour plates, has been compiled by Miss I. Darlington and other members of the council's staff, who have also arranged the exhibits.

Attractive Display

The exhibition, which will remain open until September, is small but attractively displayed. The layout and showcases have been designed by Mr. J. T. Lunn of the architects' department. The exhibits are arranged under eight heads: General development; social framework; river; literature and drama; schools and hospitals; industries; personae; children's drawings and models. The first section takes us through six successive periods, from Roman times to the nineteenth century. A large map shows the Roman roads through the district. In the next two cases are displayed the interesting results of excavations made in 1945-7 by students of the Institute of Archaeology when, among other finds, the actual Roman causeway (Stane-street) leading to London Bridge was uncovered.

The fourth case contains a conjectural restoration, to a small scale, of the famous old boat, possibly but improbably a Roman galley, found on the site of the County Hall in 1910. (The actual remains are in the London Museum.) A striking model of Southwark in Chaucer's time is the next feature, with all the fields round the small, built-up area accurately delineated, as well as the priory of St. Mary Overy, the Bishop of Winchester's palace and three parish churches. A picture-map by Braun and Hogenburg shows the area in Elizabeth's day, still mostly open land, though with some ribbon-development along Borough High-street.

A fine model of London Bridge, lent by *The Builder*, is based upon Visscher's picture-map of London published in 1616. The small size of the arches under the gateways at either end of the bridge is remarkable. Another map, by Morden and Lea, shows the development up to the end of the seventeenth century. Of all the maps exhibited, however, the most impressive is John Rocque's enormous and beautiful map of all London in 1760, where everything is shown in the utmost detail: this is, perhaps, the star feature of the exhibition. Another fascinating exhibit is the imaginary full-size sectional model through typical strata near the south end of London Bridge, showing the successive layers of occupation and the types of pottery, etc., found in each layer since Roman times.

Mediaeval Exhibits

Exhibits from the mediaeval period include some fine illuminated church-books lent from the Lambeth Palace library, and a case of church-plate. The next section contains illustrations of early Nonconformist chapels in Southwark, including the seventeenth-century meeting house in Zoar-street, where Bunyan preached, and the large Surrey Chapel (1798), both of which have disappeared long ago. Among numerous models of boats and ships in the river section, the most interesting are Samuel Pepys's private barge and his yacht, the extraordinary craft which brought Cleopatra's Needle from Egypt to London in 1877, and the ill-fated Crested Eagle, built in 1924, which, after many hilarious trips to Southend and Clacton, was bombed off Dunkirk in 1940. Another section contains reminders of Shakespeare's close connection with the South Bank, to which Miss Ashcroft made apt allusion in her opening speech. An illustration of a ward of Guy's Hospital in 1740 is guaranteed to make any modern surgeon shudder.

Coade Stone Site

Readers will naturally associate Doulton ware with Lambeth, but it may not be so generally known that Coade stone was made on the Festival site from 1769 to 1837. The factory was owned and run by a most enterprising woman, Eleanor Coade, and her family. Coade stone was an artificial product, the recipe for which is said to have died out with the family. It had a great vogue, was largely exported and may be seen in the form of architectural embellishments on many old houses in Bloomsbury and the West End. The firm employed able sculptors and issued catalogues of their products. The lions from the old Lion Brewery, now standing within the Festival area, are made of this stone.

Of the two shot-towers which formerly stood on the site, the older one was built in 1789 and demolished in 1937; but the survivor, erected in 1826, has, of course, been incorporated, wisely or unwisely, as part of the Festival buildings, with which it hardly seems at home. It is somewhat startling to learn that the manufacture of lead shot by this method, introduced into Southwark about 1760, actually continued in the surviving shot-tower up to 1949.

MARTIN S. BRIGGS.

CORRESPONDENCE

The Plasterer Trade: Specification by Numbers

TO THE EDITOR OF *The Builder*

SIR,—I am sure that all those connected with plastering will agree with the observations of Mr. Ralph E. Bullock in your issue of May 4.

I think it will be generally allowed that the British Standard Specifications and the various Codes of Practice are most useful publications, but, if the suggestions of "Quantity Surveyor" (*The Builder*, April 20, p.566) become common practice, the ambiguity to which he refers will surely be accentuated. "Quantity Surveyor" correctly states that "The standard method of measurement of building works requires that the bills of quantities shall fully describe the materials and workmanship and accurately represent the work to be executed," and he suggests this be done by quoting cross references in either British Standard Specifications or the various Codes of Practice.

Such procedure would surely open the sluice gates to the many individual interpretations which would arise in gauging precisely what is required. Furthermore, each individual who might be called upon to price such a bill would have to be armed with a full and complete library of the many publications to which reference may be made. The chaos and difficulties which would follow can be well anticipated. I agree with the objective of "Quantity Surveyor," but I am of the opinion that all those who might be called upon to price his bills would disagree with the manner in which he proposes his objective be reached. Surely it should be his "job of work" to set out in his preamble that which he, or his architect, requires (such information could be gleaned by his personal reference to the codes which he would have available, and by so doing would limit the task to one individual), as preferential procedure against imposing this task on the many estimators in contractors' and sub-contractors' offices who may be called upon to deal with his particular contract.

It is possible that "Quantity Surveyor's" job will be lessened at the expense of possibly 50, or even more, "estimators" covering each individual trade. Any sizeable contract may have at least a dozen firms in competition who, in turn, send to at least three or four or more sub-contractors covering various trades, one of which is plastering. Why cannot the one tell the 50 precisely what he requires?

R. P. BANNISTER.

454, Fulham-road, S.W.6.

A Country Code

The National Parks Commission have prepared a "Country Code" (Stationery Office, 4d.), setting out ten simple rules that visitors to the countryside would be wise to observe if they wish to retain the good will of farmers and other countrymen. The rules are: Guard against all risk of fire; fasten all gates; keep dogs under proper control; keep to the paths across farm land; avoid damaging fences, hedges, and walls; leave no litter; safeguard water supplies; protect wild life, plants, and trees; go carefully on country roads; respect the life of the countryside.

NEW BLOCK TO SCIENCE MUSEUM, SOUTH KENSINGTON

Extension Required to House Festival of Britain Scientific Exhibits

THE Science Museum at South Kensington was founded in 1912, when Government approval was given to the report of a departmental committee recommending a building consisting of three blocks, between Exhibition-road and Queen's-gate. The East Block, in reinforced concrete, was commenced in 1913, delayed by the first World War, and completed in 1927. (Fig. 1.)

In view of the need to provide adequate space for the special contribution of science to the 1951 Festival of Britain, it was decided to proceed with the Centre Block of the Science Museum. It is interesting to record that the site was occupied by a building erected in 1862 by the 1851 Commissioners; and here the first Arts and Sciences exhibition took place in 1862. This building, having outlived its usefulness, has been demolished to make way for the new structure of welded steel and reinforced concrete which, 90 years later, will be serving purposes similar to those of its predecessor. As it would not have been possible to complete the whole of the Centre Block in time for the Festival the present construction is confined to the basement, ground and first floors, with a temporary roof over the central well.

Final decisions have yet to be made regarding the arrangement of museum exhibits in the Centre Block when it is fully completed. It is likely that road, rail and powered water transportation will occupy the ground floor; aeronautics and sailing ships the open well and first floor; communications—telephony, radio, printing, etc.—the second floor; and astronomy with a planetarium (the first in Great Britain) on the third floor.

The Centre Block is approximately 400 ft. long by 100 ft. wide, and on completion its five storeys will reach to a height of about 100 ft. above the basement. Escalators will be provided to enable visitors to reach all sections of the building. The planetarium promises to be one of the most popular attractions of the museum.

The following is a description of the civil engineering work in the foundations, and the structural work up to the first floor.

Substructure

Subsoil Conditions. The geological formation of the neighbourhood was known to include a layer of flood plain gravel of the Pleistocene period, overlying London clay of the Eocene period. Records of wellborings show that in the vicinity the London clay extends to a depth as great as 270 ft. The surface of the site was fairly level, at about +28 ft. O.D. Three boreholes were sunk to a depth of 50 ft. and a fourth was stopped at 28 ft. when it showed the conditions to be similar to the others. The top 3 ft. to 6 ft. of filling, maiden soil, and gravelly clay was lying on a gravel deposit 12 ft. to 18 ft. thick below which was a stratum of brown clay 1 ft. to 2.5 ft. thick; the blue clay persisted throughout the lower depths of all boreholes. The ground water table was approximately in the middle of the gravel layer, at +11.5 ft. to +16.5 ft., O.D., and the lowest and highest levels of the brown clay were +5 ft. and +11 ft., O.D., respectively—the finished floor level of the basement being +17.33 ft., O.D.

Foundation Arrangement. Information given by site investigation and soil tests was used in determining the most suitable form of foundation, taking into account that to accommodate the basement, bulk excavation would be necessary for a depth of at least 13 ft. It was estimated that pier foundations carried down to the stiff, blue clay would have been the cheapest form had there been no likelihood of trouble from the high rate of flow of subsoil water. Even with a wellpoint system to lower the water table, the shortage of timber and skilled timbermen would undoubtedly have affected the target date for completion. The time factor was also held to rule out the use of long steel sheet piling around individual foundations.

A raft foundation bearing on the gravel offered these advantages: The water table would require lowering only a few feet over half the area; practically all the excavation could be done by machine and there would be no serious problem in regard to timbering; the pressure on the weaker brown clay below the gravel would be fairly uniform, and taking into account the removal of the overburden, would be little more than the existing pressure. Risk of settlement would accordingly be reduced; work at the east end would be simplified because excavation would not extend below the foundations of the existing Science Museum; the basement could be securely tanked by a waterproof membrane on the outside of the raft and retaining walls; and completion within the allotted time could be safely reckoned upon. It was accordingly decided to employ a raft foundation.

Foundation Design. The raft was designed with a maximum thickness of 3 ft., but to accommodate the network of service pipes required in the basement, large areas between the rows of stanchions were reduced to 18 in. thick, thus forming an inverted slab and beam construction. (Fig. 4.) In the thinned areas, service ducts were formed with half-brick walls backfilled with lean concrete. The top of the raft was kept 12 in. below the basement level to accommodate small branch ducts leading to the stanchion positions (for rising services) and to provide depth for the stanchion bases. (Fig. 5.)

Crossing the site at a level below the general line of the raft a subway was constructed 10 ft. wide by 7 ft. high to be used for cables supplying the Science Museum

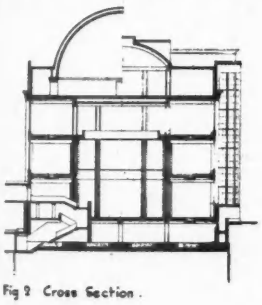


Fig 2 Cross Section.

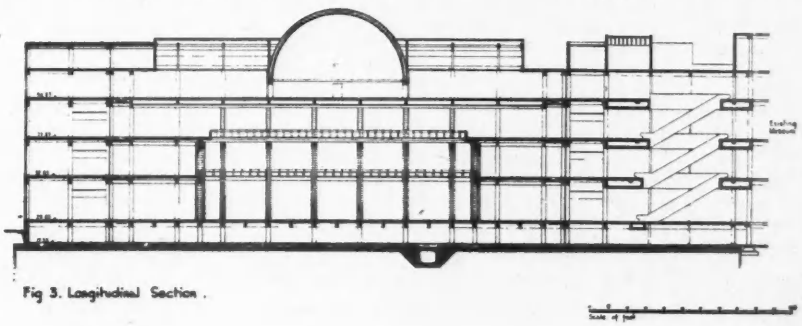


Fig 3. Longitudinal Section.

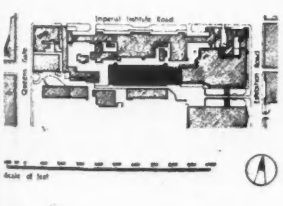


Fig 1. Site Plan.

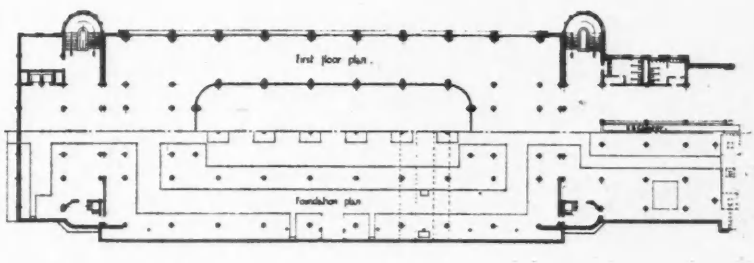


Fig 4. Foundation and First Floor Plan.

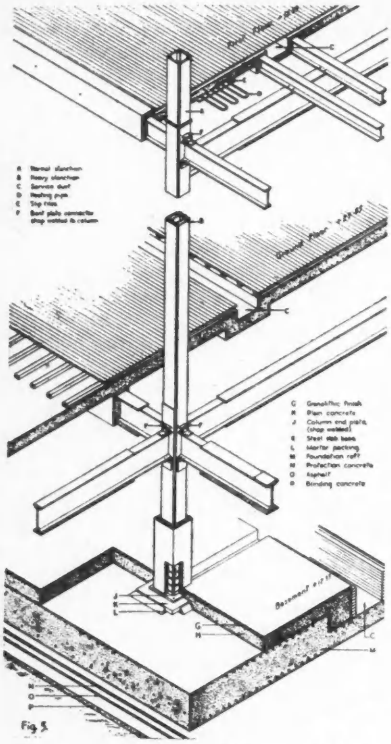


Fig. 5. Detail of stanchion connections

and other buildings with electricity from a new power house to be built on the south side. The subway was designed as an integral part of the raft, to a shape which avoided an abrupt change of section, and required no timbering during excavation. (Fig. 3.)

Along the north and south sides, the raft is forward of the building line to reduce the pressure under the edge and to accommodate a longitudinal duct. The retaining walls are integral with the edges of the raft. (Fig. 2.)

The concrete mix specified for the raft was 1:2:4, and the working stresses 1,000 lb. per sq. in. for compression due to bending and 100 lb. per sq. in. for shear. The reinforcement was ordinary mild steel in the form of plain round bars up to 1½ in. diameter, stressed to 18,000 lb. per sq. in.

Foundation Construction. To speed up excavation, steel sheet piling was used to retain the earth outside the construction lines. Wherever possible, the height of retention was reduced by sloping the surface of the cut. (Fig. 6.) The sheet piles were driven well into the clay and no difficulty was experienced except opposite the ends of the cable subway where the blue clay offered greater resistance to the extra penetration required.

On the south side, an existing building had to be underpinned; but, as it will be demolished when the new power house is built, it was considered sufficient to confine the underpinning to piers 4 ft. long at 12 ft. centres.

The whole of the basement is tanked with asphalt. A 3 in. thickness of plain concrete was laid on the gravel immediately after final excavation, and the asphalt applied to this in three layers followed by a protection of 2 in. of plain concrete on which the raft reinforcement was assembled. (Fig. 6.) The retaining walls were cast against asphalt applied to a wall of 4 in. concrete blocks built against the sheet piling.

The floor of the basement consists of a plain concrete topping to the raft with a monolithic grano finish.

A batch mixing plant and concrete pump were used in the construction of the raft and retaining walls. Concrete was pumped without serious difficulty for a distance of 400 ft. at the rate of 80 to 90 cu. yds. per day. To reduce the effect of shrinkage the work was carried out to a sequence of alternate sections, placing each continuously within one day. (Fig. 6.) Cube tests taken at frequent intervals during casting gave an average crushing strength of 3,750 lb. per sq. in. at 28 days.

Superstructure

Design. To provide for the extremely varied nature of Science Museum exhibits, ranging from heavy machinery to delicate mechanisms, the floor panels were required to be stiff in both directions and of such a type that holes of reasonable size could be cut later without detrimental effect. Cast-in-place slabs of solid reinforced concrete were selected as best fulfilling these requirements. All reinforcement is in the form of plain round bars of mild steel.

Copper pipes were embedded in the soffit of the floor slabs as part of the space heating system. They were laid on the shuttering in hairpin panels and connected to flow and return pipes at the stanchions. Clay tiles thicker than the pipe diameter, were laid between the loops to protect them during the placing of reinforcement. (Fig. 5.)

A further stipulation required that electric power, gas and compressed air should be readily available at any position in the display areas. This was met by sinking the floor slab to form service ducts from which at any time the required supply can be run in the depth of the batten under the floorboards. Removable panels cover the ducts, the lines of which follow the centre aisles. (Figs. 5, 8.)

As the ground floor will have to carry heavy exhibits, the design provides for a superimposed load of 336 lb. per sq. ft. on the slab panels and 280 lb. per sq. ft. on the beams. The upper floor allowances vary from 112 lb. to 168 lb. per sq. ft., according to the use. Wind loads were taken on the frame, in accordance with the recommendations of the Code of Practice, Chapter V.

The main staircase enclosures form special features of the elevations, and to avoid unsightly beam and column casings the walls and flights are of reinforced concrete slab construction throughout. The slender mullions in the large curved windows of the stairs are also of reinforced concrete, and its use here called for special care in shuttering and concreting. (Fig. 8.)

To minimise the effect of thermal movement, the Centre Block is divided into sections and divorced from the East Block, the position of the division lines being governed to some extent by the internal layout. To fit in with the façade, also, one bay of the new work is carried up to roof level and connected to the East Block. (Fig. 7.) The middle section of the Centre Block is 250 ft. long to avoid having a division line through the open well; and its ends are just clear of the main stairs to allow for temperature movements. (Fig. 4.)

Disconnection is provided by double stanchions and beams along the division lines, where the floor and wall finishings will be arranged to allow a slight movement. (This division of the building into sections was confined to the superstructure, the foundation raft being monolithic.)

Protection From Fire

Structural steelwork was selected for the main framing as it ensured completion within the target date and could be readily

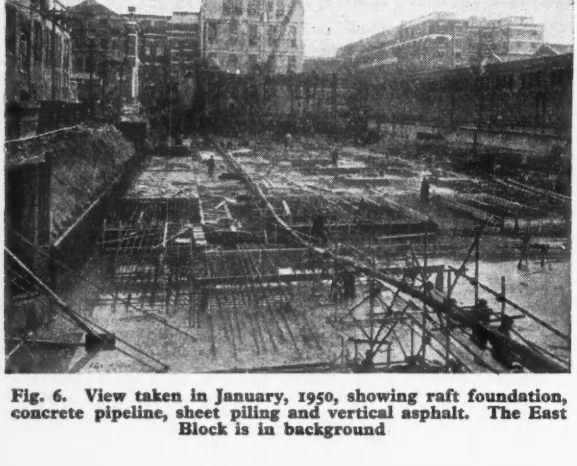


Fig. 6. View taken in January, 1950, showing raft foundation, concrete pipeline, sheet piling and vertical asphalt. The East Block is in background

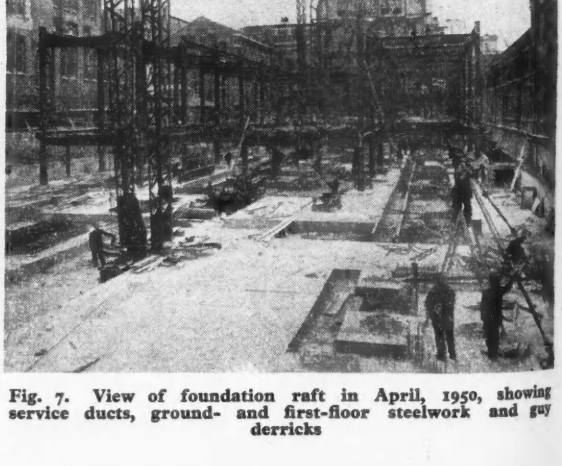


Fig. 7. View of foundation raft in April, 1950, showing service ducts, ground- and first-floor steelwork and guy derricks

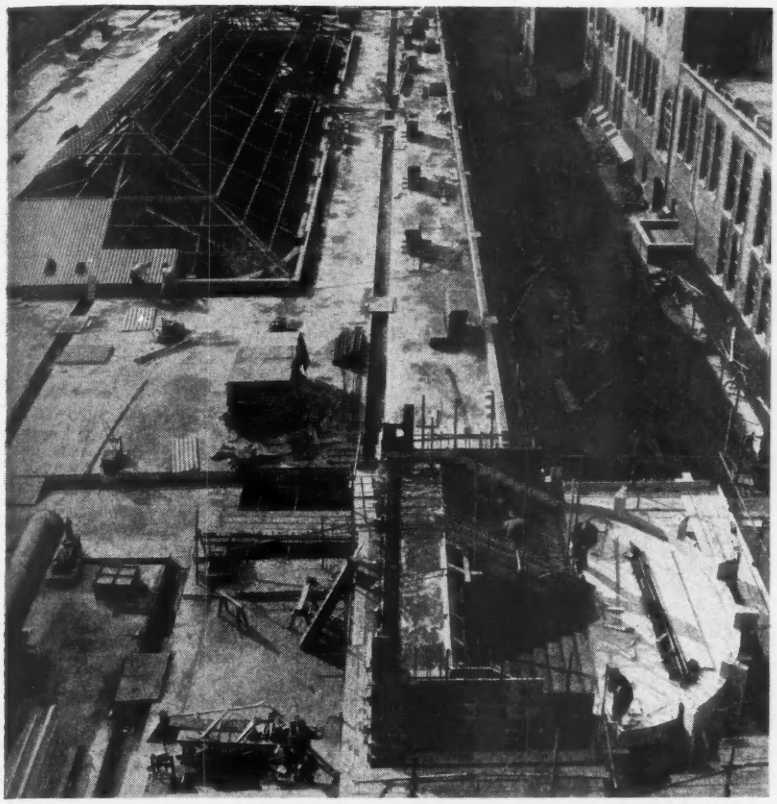


Fig. 8. October, 1950. Temporary roof over open well; service ducts, main stairs and mullions can be seen

modified, if necessary, to suit the needs of the Festival. Mild steel was used throughout, for although high tensile steel would have shown a marked economy in certain members, it could not be promised in time. All stanchions and beams are protected from the action of fire by a 2 in. thickness of concrete, reinforced in accordance with the Ministry of Works standard detail which ensures that the bars are held in the centre of the 2 in. thickness.

Certain features of the Centre Block tend to reduce its lateral rigidity. The storey heights are considerable and have few cross walls, whilst the first and second floors are perforated by a large open well. To give adequate stiffness, an all-welded rigid frame was considered; but as this would have required more time to design and build than was available, a semi-rigid design was adopted providing for the use of tight-fitting bolts in the beam-to-stanchion connections. Additional stiffness was given to the middle section by introducing end walls of reinforced concrete to form abutments to any lateral forces communicated to the floors. (Fig. 4.)

To save time and money, all compound beams and plate girders were specified to be of welded construction, and consideration was also given to the employment of welding for the stanchions, which carry loads up to 650 tons, with a storey height from ground floor to first of 23 ft. The cost of various riveted and welded sections was compared and an all-welded box section was finally adopted, composed of two plates and either two or four channels, with thick plate seatings for the beams, and U-shaped connectors for picking up the top cleat bolts. (Fig. 5.)

Welding. Where the flange plates of compound beams changed section the lengths were butt-welded together before being tack-welded to the "I" section. The compound was mounted in a manipulator and the longitudinal fillet welds made in the downhand position by two welders working simultaneously from the centre to the ends. No distortion troubles were experienced and the longitudinal shrinkage was negligible, as few of the compound beams exceeded 25 ft. in length.

The joints of plate girder flange plates were also butt-welded as the first operation. All parts of the girder were then assembled, tack-welded together, and mounted in a manipulator. Stiffeners and fittings were first welded to the web in the horizontal-vertical position, followed by the main longitudinal fillet welds which were run downhand by two welders working simultaneously from the centre to the ends. Lastly, stiffeners were welded to the flange plates in the horizontal-vertical position. Distortion troubles were minor, and longitudinal shrinkage negligible, though here again the girders were comparatively short.

In the case of the two-channel type of stanchion, as a first precaution extreme care was taken to ensure that all shaft material was straight and free from wind. The two channels, with accurately profiled diaphragms welded in between, were checked for straightness and rectified where necessary. The flange plates were tack-welded to this unit which was then mounted in a manipulator by means of which the main longitudinal fillets were run downhand by two welders working simultaneously from the centre to the ends. Little trouble was experienced with distortion provided the material was dead straight and free from

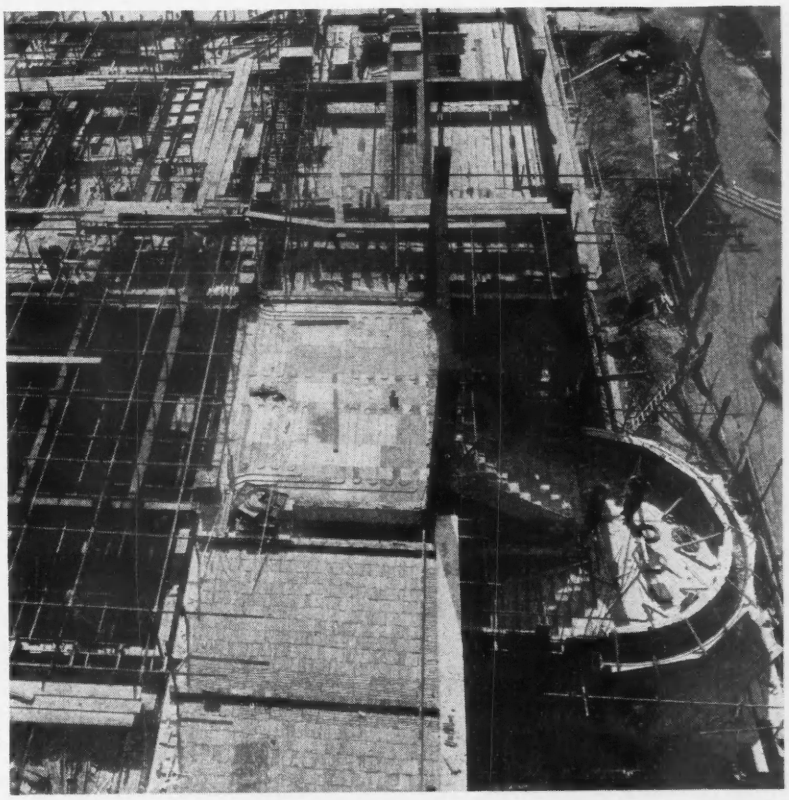


Fig. 9. August, 1950. View from roof of East Block, showing north-east staircase and embedded heating panels

wind before welding. The longitudinal shrinkage in 36 ft. was about $\frac{1}{8}$ in.

Difficulty was experienced in the initial stages with the four-channel type of stanchion. Three of the first four shafts completed had a wind of up to $\frac{1}{2}$ in. in the length. The trouble was satisfactorily overcome, however, by a rigid adherence to the following procedure:—

Prior to assembly, all shaft material was carefully straightened and where necessary, corrected for wind. The two centre channels were assembled and connected together by welded plate diaphragms, accurately machined to size. Flange plates, after butt-welding different sizes together, were pre-set $\frac{3}{16}$ in. in the width to provide for subsequent shrinkage from the longitudinal welds. The flange plates were then carefully positioned on the centre two-channel component and secured by tack-welding. This component was then mounted in a manipulator and the longitudinal welds made in the horizontal-vertical position by four welders working simultaneously from the centre to the ends. The two outer channels were then inserted, care being taken to ensure they were correctly positioned at all points throughout the length, as errors in this appeared to be the cause of wind in the finished shaft. With the outer channels tack-welded in position the shaft was remounted in the manipulator, and the longitudinal fillet welds made in the h.v. position by four welders working simultaneously from the centre to the ends.

With both types of stanchion, all bracket plates and top cleat connectors were welded on with the shaft still in the manipulator so that the principal welds could be conveniently made in the downhand position. The stanchions were then machined to exact length and fitted with end plates.

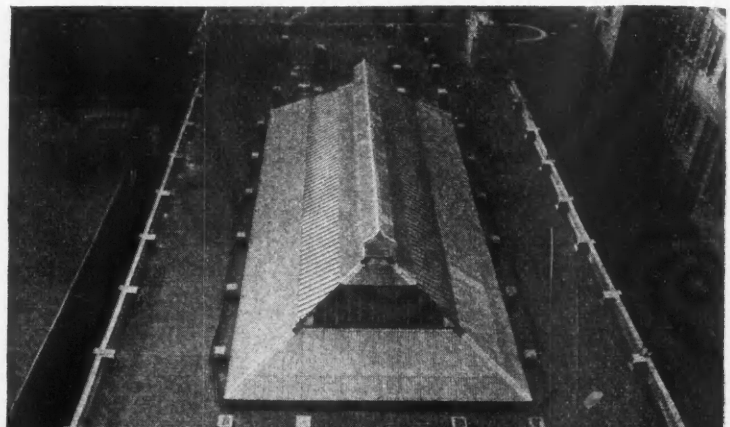


Fig. 11. Closer view from East Block

Weight of Steelwork

Erection. The total weight of steelwork in the Centre Block, up to the first floor, was 1,000 tons, the whole of which was erected by means of two guy derricks (Fig. 7). Steel slab stanchion bases were set on packing plates to fairly close position and level before the stanchions were erected. Small plates, welded to the stanchions in the works, were site-bolted to the slabs, a far more convenient arrangement than shop-welding the slab. On completion of erection, lining and plumbing, the 2 in. space between the raft and the slab was packed hard with a moist mortar of cement and sand (Fig. 5).

Construction of the beam and stanchion casings and floor panels followed closely on the steelwork erectors. Access to the site was extremely poor, for it is hemmed in by existing buildings. A ready co-operation between all concerned, however, helped to get round this difficulty and complete the work within the target date.

For occupation during the Festival of Britain, the open well has been temporarily roofed over at first floor level by means of ordinary trusses and corrugated asbestos-cement sheeting. The shoe connections were specially arranged to allow the upper floors to be completed without disturbing the temporary roof (Fig. 8).

The Architect responsible for the whole of the works is Mr. W. Kendall, A.R.I.B.A., of the Ministry of Works. Mr. W. Silcock was the Clerk of Works during the construction of foundations, and was succeeded by Mr. W. J. Groom. The site investigation was made by the Soil Mechanics Section of the Ministry of Works. The general contractors were Messrs. Higgs and Hill, Ltd., and the steelwork contractors Messrs. Moreland Hayne and Co., Ltd. The consulting engineers for the foundations, steel frame, and reinforced concrete, were Messrs. Husband and Co., in collaboration with Mr. G. A. Gardner, O.B.E., Chief Structural Engineer, Ministry of Works.

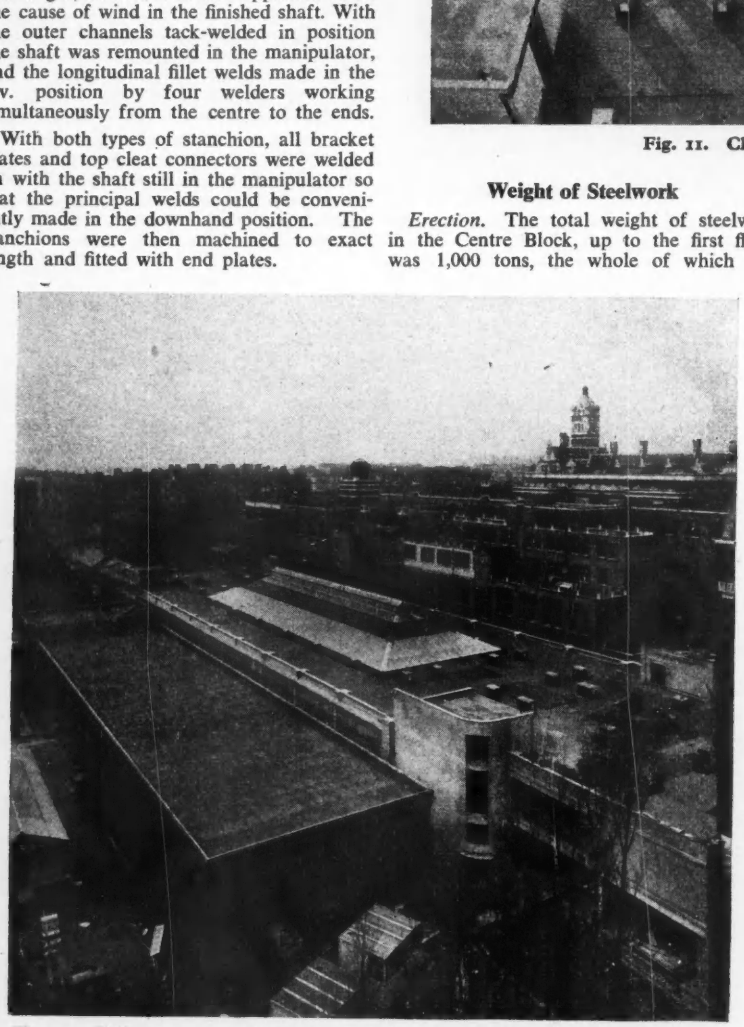


Fig. 10. February, 1951. View from roof of Geological Museum. The roof over the well is temporary, and the first-floor slab completes the temporary roof. Note also casings to temporarily stopped-off stanchions, temporary cladding and patent glazing

CEMENT AND CONCRETE TESTING

Opening of New Structures Laboratory for Cement and Concrete Association

OVER four hundred architects, constructional engineers, builders and others associated with the building industry were present when MR. GEORGE BROWN, Minister of Works, opened the new Structures Laboratory at the Cement and Concrete Association's Research Station at Wexham Springs, near Slough, last week.

Mr. Brown praised the work being done on prestressed concrete, which would make possible enormous reductions in the use of steel, as well as economies in the efficient use of other materials.

He was very interested in the training courses the Association were conducting nearby at Wexham Place. There was great scope for gaining the interest of the man on the job, and he was particularly glad to hear of the courses for site supervisors. The liaison that existed between the Research Station—sponsored by private enterprise—and the Road and Building Research Stations—Government departments—was as it should be, and he hoped it would continue.

Other speeches at the opening ceremony were made by Sir Francis Meynell, R.D.I., the Association's director, and by Mr. A. M. C. Jenour, chairman of the Association's Executive Committee.

The Structures Laboratory, which is the first important addition to the Station since it was established at Wexham Springs in 1947, was designed by the late Christopher Nicholson, F.R.I.B.A., and Mrs. Eleanor Michell, A.R.I.B.A., his assistant, the associate architects being Messrs. Hugh Casson, F.R.I.B.A., and Neville Conder, A.R.I.B.A., with W. A. Fairhurst, M.I.Struct.E., as consulting engineer. Messrs. Holland & Hannen and Cubitts, Ltd., were the main contractors.

The Structures Laboratory itself, which is 100 ft. long, 30 ft. wide and 26 ft. high, will be used for research into problems relating to structural design. The precast concrete laboratory, contained within the main building, is a room of 30 ft. by 30 ft. and 14 ft. 3 in. high, directly adjoining the Structures Laboratory. Here investigation and experimental work will be undertaken on problems concerned with precast concrete development. A small block containing the research staff offices projects from the main body of the structure at the south-west end, and there is another projection containing stores, etc.

With the exception of the offices and stores blocks, where the walls are load-bearing, the building is reinforced concrete framed. "T" section columns and the roof main beams which they support are spaced 10 ft. centre to centre along the length of the building; they support at 15 ft. 5 in. above floor level longitudinal beams for the running rails of an overhead hand-operated crane. The roof main beams, which were precast and which were pre-tensioned on the Hoyer system, have an unsupported span of 29 ft. 6 in. "T"-shaped precast and prestressed roof joists span from main beam to main beam and the roof infilling between these consists of unreinforced concrete blocks.

The Test Floor

The test floor itself, which was designed by the Station's staff, is specially constructed for large-scale experimental work. It is 2 ft. 6 in. thick and reinforced with two layers of 1-in. diameter bars spaced at 6-in. centres in the bottom and 21-in. centres in the top. Twenty-four 1¼-in. diameter ducts for the passage of prestressing cables have been incorporated in the concrete at 1-ft. centres, 20 in. below the floor level and rising in a catenary to within 6 in. of the surface at both ends, so that the floor can be post-tensioned if necessary. A crane, designed to carry a load of five tons, will be used to handle sections of the framework and test specimens inside the building.

Special apparatus has been developed for making tests on large structural elements. It was felt that the most economical method of carrying out a wide range of tests of this nature was to construct a universal testing machine capable of being arranged in as many ways as possible. The testing equipment consists essentially of a base plate, formed by part of the laboratory floor, and a frame which is, perhaps, best described as a large "Meccano set" so that loads can be applied by hydraulic jacks and the reactions taken by the frame. Cast into the floor are 263 steel anchor sockets screwed with a 1½-in. diameter thread and designed to withstand an upward force of five tons. These sockets have been arranged in an equilateral triangular pattern, each socket being dependent upon the force it is required to hold down. In general, the aim has been to make the testing machine fit the test specimen rather than to have to restrict the specimen to an existing testing machine, and the framework can be erected to enclose the experimental structure so that point or distributed loads can be applied directly and with slight adjustments it can be used for direct compression tests on columns or racking tests on frames.

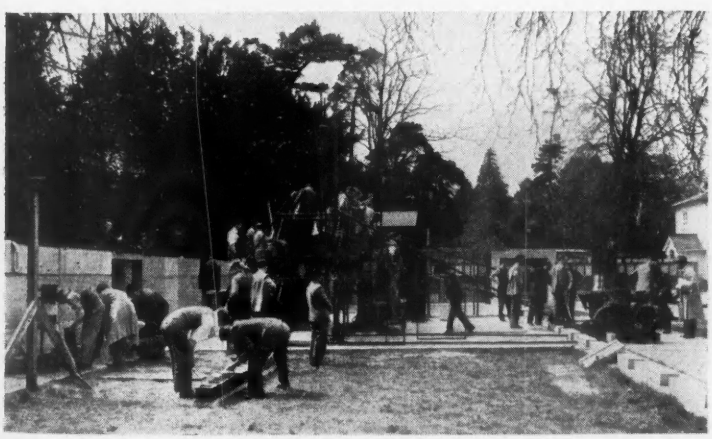
The load is applied to the test specimen by hydraulic jacks which are connected to the main frame by 12 in. x 12 in. broad-flange beams which provide a large seating area for the jacks. The main beams may be adjusted at heights varying from about 4 ft. 8 in. to 12 ft. from the floor by increments of 12½ in. and the secondary broad flange beams may be adjusted over a range of 9 in. by 3 in. increments.

The jacks are operated by a hydraulic system, fed by an axial plunger pump, driven by a 10-h.p. motor, with a capacity of 938 cu. in. per minute and at pressures up to 4,000 lb. per sq. in. The equipment has been designed to operate six double-acting jacks, each of which have a 6-in dia. piston and a 4½-in. dia. piston-rod and are designed to push with a force of up to 50 tons, or for pulling with a force of up to 21 tons.

For convenience of operation all the controls and gauges have been collected together into one mobile unit. Although the hydraulic jacks will be used in most experimental work, loads can also be applied by means of dead weights or by air bags acting between the specimen and the reaction framework.

For strain measurement on test specimens it is intended to use electrical resistance methods, acoustic gauges and mechanical dial gauge strain indicators.

The surface finishes of this building are also worthy of note. With the exception of the brick north wall, they are all basically products of cement, and full advantage was taken of this opportunity of demonstrating some of the attractive colourings and textures that can be obtained with cement renderings as well as the different types of finish which can be given to concrete, both *in situ* and precast.



Training course in progress, Wexham Springs

Bournville Village Trust Jubilee

The trustees of the Bournville Village Trust, which was founded in 1900, are arranging to celebrate the jubilee of the Trust this year so that it will coincide with the Festival of Britain. A week of celebrations is planned which will commence with a thanksgiving service on the evening of Sunday, June 24, and will terminate with a firework display on the following Saturday. Among the events which will take place are a flower show, cricket and lawn tennis matches, an arts and crafts exhibition, and a display of folk and country dancing. During the week, Dame Elizabeth M. Cadbury, chairman of the trustees, will open the 200th house to be built by the trust since 1946.

Illuminating Engineers' President

At the annual meeting of the Illuminating Engineering Society, held in London on May 8, Mr. J. G. Holmes was elected president for the year beginning October next.

Minerals Valuation and 1947 Planning Act

Mr. Trustram Eve at the R.I.C.S.

THE valuation of minerals might sound frightening and terribly specialist, and it might become so if we allowed ourselves to be led away from the straight and narrow path of finding out what the value of the land was when bought and sold in the market and did not withstand the blandishments of text-books and valuation tables which might very well lead us into the realm of make-believe, MR. J. D. TRUSTRAM EVE, F.R.I.C.S., F.L.A.S., F.A.I., told the Royal Institution of Chartered Surveyors in a paper on the "Town and Country Planning Act, 1947: Minerals Valuation and Planning," at a meeting in London on May 7. It was the main object of his paper to show how seldom it was really necessary to venture into such realms and how safe it was to stick to estimates of market values even when there were no actual transactions to guide one. Mr. Trustram Eve continued:—

Development values under the 1947 Act include mineral values and fundamentally the same principles apply to minerals as to other properties. The main difference is that each fresh shovelful counts as development and so development of minerals is a continuing process unlike most other forms of development. There has been noticeable, from the first debate on the Bill in Parliament, a sensitiveness on the part of the authorities to the possibility of the Act's impeding the smooth production of minerals and increasing their price. The same sensitiveness could be noticed over house-building resulting in the builders' near-ripe scheme and politically over the one-plot man. Some of the anomalies removed by the mineral regulations are ones common to all forms of development and are endemic in the principle of removing development rights from owners in order to cure the compensation/betterment problem.

Likewise the near-ripe scheme for minerals, which has been the subject of nearly three years' negotiations between the mineral industries and the Central Land Board, is a complicated instrument intended not only for fitting the provisions of the Act to the special requirements of mineral development, but also for mitigating the harsh effects of the principles of the development rights provisions of the Act, which fall also upon all other forms of development. To that extent mineral developers are favoured people—or, perhaps, more accurately, all other developers are unfavoured people!

Four Main Provisions

As with other classes of property there are four main provisions of the Act affecting minerals: (a) Claims for loss of development rights (Part VI); (b) development charges (Part VII); (c) compensation, including compulsory purchase; and (d) planning (Parts I to IV). These four matters are interlocked in such a way that completely separate consideration of each is impossible, and planning is the most important consideration.

In considering the effect of the Act on minerals it is important neither to have one's head in the clouds nor yet underground, but to remain with the feet firmly on the ground. I have, therefore, tried to keep the issues clear by devoting my paper to a consideration of surface workings only and have confined my remarks to freehold operators only, with a short note on leaseholds in an appendix.

The Planners' Task

After reviewing the first three aspects of the Act in some detail, Mr. Eve went on to deal with planning. He said that valuers are apt to forget that the 1947 Act is a planning Act and all this confusing chatter about development values, development charges, compensation for revocation, near-ripe schemes and so on are, oddly enough, directed to simplifying the planners' task!

The planning of minerals requires a particularly long-term view. Firstly, because the capital sunk in the buildings, plant and machinery is often large enough to require a great number of years amortisation and therefore, there must be certainty that a sufficient acreage of minerals to cover that term of years is available to the undertaking before the capital is spent; and secondly, because some of the minerals are rare, either generally or locally, and should be protected from other development for all time. Such long-term planning requires a weighing up of many factors, both national and local, some of which require time to evaluate.

All planning applications for winning and working minerals which were being worked on the appointed day should have been in by January 1, 1949, at the latest unless there was a valid permission granted since July 21, 1943, in force at the appointed day. Applications for continuance of future working follow the same procedure as applications for other forms of development. Provided the land had been worked between January 1, 1946, and July 1, 1948, and application made for the continuance of working by January 1, 1949, the undertaker is permitted to continue the operations until the local planning authority gives their decision on the application. A period of 30 months, which can be extended by agreement, is allowed, during which time the local planning authority must issue their decision. All other mineral applications have to be granted within two months (or such extended time as may be agreed), otherwise they are deemed to have been refused. Nearly all local planning authorities have excluded mineral applications from their delegation schemes, and so applications, which must be made to the local council are sent by them on to the local planning authority. The Minister has "called in" certain mineral applications and in such cases the Ministry will give the applicant an opportunity to be heard by a "person appointed" if he so desires.

The planning application should generally be sufficiently wide to cover all reserves necessary for the continuance of the undertaking and the local planning authority should receive as full a picture as possible of the intentions of the applicant. It should be remembered in this connection that planning applications can be made on land not actually held by the applicant at the time of the application.

The most important feature of the planning of minerals is the conditions that should be attached to working them. Many local planning authorities are codifying conditions to be attached to mineral workings and it is obvious that such codifying is extremely useful administratively for both the planning officials and for the mineral operators. There is the obvious danger, however, that conditions might thus become too stereotyped; for I am certain that each case must be decided on its own merits with a real intelligent understanding by the planning officials of the working of the particular mineral.

Restoration needs a word, I think, as being of general importance. In the case of shallow workings it is often possible to replace the overburden removed, putting the top soil on top, and so restore the land to agricultural use very soon after the minerals have been extracted. This is common in the stock brick area in Kent, where the brick-earth is, perhaps, only 6-8 feet deep and I have seen limestone in Nottinghamshire where the workings were only 15 feet thick and the plough was working only some 100 yards behind the mineral face.

But for normal and deep workings it is in my experience seldom possible to restore the land to agricultural use without the aid of some filling material imported from off the site. Such material is not available, unless the workings are within easy reach of towns which might provide material from building excavations, demolitions or putrescible material from local authorities (which is not always permitted).

Two Categories of Land

On development plans mineral land is to be shown in two categories on the basic map, namely, "land secured for mineral working," and "land intended for mineral working." The former will be mineral land which a mineral undertaker may obtain under the regulations, which provide that the High Court, in considering application for rights to work minerals under the Mines (Working Facilities and Support) Act, 1923, shall assume that the working of such minerals will be in the public interest; whereas "intended" land does not come within these important provisions and is merely a warning for other development to keep off. It is to be used only for such minerals as require special protection from other development.

The programme map may show what land is to be worked within the first five years, the subsequent 15 years, and thereafter. Mineral land may be designated for compulsory purchase, but unlike most other designated land, it would presumably be for eventual redisposal to a mineral undertaker to work. A mineral undertaker who cannot obtain his minerals by normal negotiation has the Mines (Working Facilities and Support) Act as well as the Central Land Board, the local authority or the Minister to help him obtain them by compulsion. But, after the development plan has been approved, the local authority and the Minister can exercise their powers only on land "designated" in the plan.

Once a development plan has been approved by the Minister, planning permission will normally be given in conformity with it. Care should be taken, therefore, as for other forms of development, to inspect the plan and put in an appearance at the public inquiry if it appears necessary to amend it.

The Mineral Workings Bill contains provisions for regulations to be made for the near-ripe scheme, a number of administrative changes of some minor importance and provisions for the iron ore restoration

fund. The provisions for this last contain some matters of valuation importance which, in my opinion, seriously conflict with the principles of the Act (and, perhaps, with any principles at all), but there is no space to deal with them here.

Conclusions

In an endeavour to keep this paper clear and short, I am aware that I have, perhaps, over-simplified some of the matters and have omitted other important matters altogether. I hope, however, the main consideration will have emerged, that the imposition on to minerals of the all too attractive theory, that to remove from owners their right to develop and, therefore, their right to compensation on refusal of planning permission to develop, would solve the compensation-betterment problem at a stroke of the pen, was not a practical proposition and minerals should have been left out of the Act.

Attempts to make the Act fit minerals have absorbed millions of man-hours for those concerned on both sides of the negotiations (hardly a stroke of the pen!) and with what result? A virtual removal of minerals from the Act, with the following important exceptions:—

(a) Compulsory purchase prices are not the market value of the mineral land, but existing use value plus abortive expenditure on development charges; this is in contrast to private purchases of near-ripe minerals, which will be at full mineral values qualified only by the different basis for compulsory purchase where a threat of such is likely to affect the value in the market.

(b) Mineral operators can no longer purchase new minerals at mineral value since "dormant" minerals are still "in the Act" and, therefore, they will have to pay too much for them with development charge on top or seek compulsory powers or not buy them.

But for these two small but important gaps we have, therefore, gone full circle towards eliminating minerals from the Act. Considering the enormous amount of effort that has been required to reach this point and the administrative effort necessary to maintain this position in the future, it would surely have been better to have cut them all out of the Act and leave minerals to have been freely bought and sold at market prices and fully compensated at these prices if planned against.

Before completing my paper I should like to pay tribute to the courtesy and patience of the officials of the Central Land Board throughout the three years of discussions that have taken place between the mineral interests and themselves on the near-ripe scheme and other cognate matters, though I would like to add that the patience necessarily shown also by the representatives of the industries was no less great.

I should like to extend these sentiments also to the officials of the Ministry on planning matters, especially congratulating them on their production of the "grey book" on Control of Mineral Development. And, finally, I should like to pay respects to the extremely co-operative spirit of those members of the Valuation Department who have been concerned in these matters throughout this long and trying period. I trust I am speaking for other members of the Institution when I say that we are looking forward very much in the near future to co-operating with them further in the settlement of the mineral claims under Part VI of the Act, when we hope to be at least their equals in the bandying about of the latest jargon attached to mineral valuations under the Act, such as "moratorium deferment," "disclaim payment," "date of satisfaction," "option to disclaim satisfaction." What fun it all is!

MINERAL DEVELOPMENT RIGHTS

Compensation Payments

A MEMORANDUM dealing with the draft regulations to provide for setting off development charges against payments under the Town and Country Planning Acts, 1947, in respect of certain mineral workings, has just been published.*

The memorandum explains that under the Mineral Workings Bill, now before Parliament, provision is made for a 100 per cent. payment, in respect of certain classes of mineral workings, out of the £300m. set aside under the 1947 Acts to meet claims of landowners who suffer loss of development rights. The Mineral Workings Bill enables regulations to be made specifying the classes of mineral undertakings which are to qualify for the 100 per cent. payment, and applying a scheme for setting off development charges against payments in such cases.

In broad terms, the draft regulations apply to minerals in which a person engaged in the working of minerals had a freehold or leasehold interest on July 1, 1948, which was the date on which the 1947 Acts came into full operation. It is an essential condition that a claim on the £300m. should have been duly made and should qualify for a payment. In a leasehold case it is sufficient that a claim by one of the parties should so qualify. Provision is also made for the admission of certain doubtful cases.

The principal effects of the regulations will be that the mineral undertaker, whether freeholder or lessee, will make no actual payment of development charge, nor will he receive anything from the £300m., except to the extent that he is prevented by planning restrictions from working the minerals. The lessor in a leasehold case will continue to receive the rent and royalty reserved under his lease to the extent that permission to work the minerals is granted; to the extent that working is prevented by planning restrictions, he will receive a payment from the £300m. A sale or lease of minerals to which the regulations apply can be on the basis that the purchaser or lessee will not have to pay any development charge for working the minerals.

* Cmd. 8217, H.M. Stationery Office, 9d.

Clay Working in Bedfordshire

The Minister of Local Government and Planning, Mr. Hugh Dalton, has given permission for the winning and working of chalk and clay at Houghton Regis, Sewell and Stanbridgeford in Bedfordshire by the Associated Portland Cement Manufacturers, Ltd. Among the conditions he has imposed is that the ancient earthwork known as the Maiden Bower shall not be damaged by quarrying, and that access to it shall be kept clear. In a letter announcing Mr. Dalton's decision it is pointed out that the Houghton Regis quarry will be exhausted in 19 years.

PENSIONS IN THE BUILDING INDUSTRY

N.F.B.T.E.'s Scheme

STATING that modern conditions make the provision of pensions a matter of concern to all employers, but the organisation of the building industry makes it difficult for the employer, whose regular staff is small, to institute on his own a staff pension scheme, the National Federation of Building Trades Employers say that they succeeded in overcoming this problem by setting up a staff pension fund through which employment in the building industry becomes a pensionable career. Employers wishing to provide pension and life assurance benefits for their staffs can become contributing employers to the fund. All contributing employers within the scheme constitute a single group, and contributions to the trustees of the fund are all determined by the same basic rates applicable equally to all firms.

Individual employees, according to their salary class, pay the same weekly contributions to the fund and enjoy the same benefits. There is no loss of pension rights when an employee transfers his service from one employer to another within the scheme. The benefits of the scheme have been secured by policies of insurance and the administrative expenses of the fund are borne by the National Federation as part of its service.

A pamphlet outlining the scope of the scheme is obtainable from the Secretary, Trustees of the Staff Pension Fund of the N.F.B.T.E., 82, New Cavendish-street, W.1.

BOOKS RECEIVED

THE CITY OF LONDON. A Record of Destruction and Survival. (London: Architectural Press.) Price 25s.

500 QUESTIONS ABOUT PAINTING AND DECORATING. By J. Lawrence. (Manchester: The Sutherland Publishing Co. Ltd.) Price 12s. 6d.

CONSTRUCTION WITH MOVING FORMS. By L. E. Hunter. (London: Concrete Publications, Ltd.) Price 7s. 6d.

THE OBSERVER'S BOOK OF BRITISH ARCHITECTURE. By J. Penoyre, A.R.I.B.A. (London: Fredk. Warne and Co., Ltd.) Price 5s.

THE DESIGN OF PRISMATIC STRUCTURES. By A. J. Ashdown. (London: Concrete Publications, Ltd.) Price 8s.

YORK. By John Rodgers. (London: B. T. Batsford, Ltd.) Price 8s. 6d.

DRAINAGE AND SANITATION. By E. A. Blake. Revised by L. G. Gumbrell. (London: B. T. Batsford, Ltd.) Price 15s.

URBAN ESTATE MANAGEMENT. 2nd Ed. By W. A. Leach. (London: Estates Gazette, Ltd.) Price 45s.

REGISTER OF SURVEYORS, LAND AGENTS, AUCTIONEERS AND ESTATE AGENTS, 1951. (London: Thomas Skinner and Co. (Publishers) Ltd.) Price 40s.

*** *Books reviewed in these columns may be obtained on application to the Publisher, "The Builder," 4, Catherine-street, Aldwych, W.C.2. Cash should accompany the order.*

Building in Stone

Efforts are to be made to encourage the use of stone for building in Northamptonshire. Sponsored by the county branch of the Council for the Preservation of Rural England, a Northamptonshire Stone Committee has been formed under the chairmanship of Earl Spencer.

LAW REPORT

Builders' Successful Claim

KING'S BENCH DIVISION
BEFORE LORD JUSTICE MORRIS

A. Smith and Son (Bognor Regis) Ltd. v. J. J. Walker

A CLAIM for sums totalling £2,592 for building work carried out at premises at Mill-lane, Arundel, with damages for alleged misrepresentation, breach of contract and breach of warranty was brought by Messrs. A. Smith and Son (Bognor Regis) Ltd., builders and contractors, of Sudley-road, Bognor Regis, against Mr. James Jack Walker, of Kingston-lane, Southwick, in the King's Bench Division on May 4.

Mr. G. R. F. Morris, for the plaintiffs, said that in 1948 defendant was owner of premises which he wanted converted into a café and ice-cream parlour.

At a meeting between the parties on April 19, 1948, a plan was produced for the work which had been passed by Arundel Town Council the previous December. Mr. Walker said he had already obtained a building licence for £2,500 which covered the work of conversion. In addition, it was clear that, as an emergency operation, the west elevation wall and chimney would have to be dealt with.

In due course the plaintiffs sent, and the defendant accepted, an estimate for work for that amount. Work started on the site on April 21 and a considerable amount of emergency work was also found to be necessary.

In May the plaintiffs discovered that no licence had in fact been issued, but on June 11 one was issued for £1,200. They felt they had been grossly misled into entering upon the work in the belief that a licence had previously been issued for £2,500. They accordingly treated this as a repudiation of the contract.

On July 5 a new "cost-plus" contract was agreed to, and the Ministry of Works told the plaintiffs to "use their own discretion" in regard to the work, for which a licence of £1,200 was inadequate and which included considerable emergency operations.

The work continued and the Ministry subsequently issued an approximate supplementary licence for £2,000. By November the work had been substantially completed, but when the plaintiffs sent an account to the defendant, disagreement arose between them.

The plaintiffs had done emergency work which was unlicensed to the value of £1,733, in respect of which Mr. Walker had paid £1,500, leaving a balance due of £233. Licensed work had been authorised to the sum of £3,200, of which the defendant still owed £2,339. In addition they had suffered loss and damage in respect of Mr. Walker's misrepresentation concerning the building licence.

Mr. B. E. Dutton Briant, for Mr. Walker, said the allegations of misrepresentation were denied. When the terms of the contract were altered to the "cost-plus" basis, Mr. Walker stipulated that the work should not exceed £3,200. He contested the plaintiffs' claim for sums which were in excess of that figure.

Giving judgment, Lord Justice Morris, who was sitting as an additional judge of the King's Bench Division, said the property was 300 years old and Mr. Walker bought it for £1,650. There was no reason at all why a licence should not have been obtained before the work was ever begun. It was understandable that, with an old building, once the work of alteration was taken in hand, more extensive work became necessary than was contempated. On May 5 the plaintiffs withdrew their men, but returned to the site a few days later. There was no reason why they should have returned until they had a licence.

The work done was far from being "emergency work," for which no licence would be required, and the plaintiffs at the time were clearly taking the view that they were doing licensable work. The plaintiffs also knew that at no time was the work on the back wall licenced, but were willing to do that without licence.

The fact was that the plaintiffs were not concerned, alarmed or thoughtful about the licences at all. The cost of the work to July 15 was £1,519, but his lordship was not satisfied that when the contract was changed on that date, any definite "ceiling" of £3,200 was fixed, as Mr. Walker contended.

With regard to the misrepresentation, Mr. Walker was discursive, tantalising and provoking as a witness. He was a difficult man to follow, and must have been as difficult in his dealings, but he was not dishonest. The allegation of misrepresentation was not established by the evidence, it being the duty of the builder himself to ascertain the licence position.

In respect of the licensed work done, Mr. Walker had paid, or been given credit for, sums totalling £1,341 out of licensed work of £3,200. There would accordingly be judgment for the plaintiffs for the balance of £1,859 with costs.

A stay of execution for 21 days was granted in respect of £1,000 of that sum.

GREATER FLEXIBILITY IN HOUSING

Mr. Dalton's "Step Forward"

SPEAKING at Stoke Newington on May 9, Mr. A. Bunting, president of the London Region of the Federation of Master Builders, said: "Can it be that a glimmer of light of freedom is penetrating into the fastnesses of Whitehall? The recent announcement by Mr. Dalton that, subject to certain basic standards, local authorities are to be given freedom to use their own ingenuity in designing their houses, is a distinct step forward. It is now to be hoped that the glimmer will be magnified into a searching beam which will demonstrate to the Minister in charge of housing that there are other fields where local authorities need autonomy in housing matters."

At the moment, local authorities had to operate the one-to-four housing ratio, whereby they must only issue one licence for a house to be built for owner-occupation to every four houses built for letting by the council. This was manifestly absurd in the light of conditions obtaining to-day. First, there was an unnecessary drain on the rates and taxes because thousands now living in, or waiting for, council houses, would be very pleased to build a house of their own without any cost to the State. Secondly, whereas in certain districts a lot of council houses were necessary, in others hardly any at all were needed. Thirdly, if those builders who erected houses for owner-occupation could be given a chance to show what they could do, then there could be no doubt that the force of their competition would bring housing costs down.

"All in all, then, I can only hope that Mr. Dalton will continue the good work he has started and not allow himself, as did his predecessor, to be blinded by outworn party prejudices and dogmas," Mr. Bunting concluded.

HOUSING PROGRESS

Figures for March

THE Housing Progress Reports (a brief summary of which appeared in our last issue) presented to Parliament on May 8, by the Minister of Local Government and Planning and the Secretary of State for Scotland show that the number of permanent houses completed in Great Britain during March was 16,757 compared with 13,984 in February and 13,150 in January.

The total number of houses completed under the post-war programme is now 1,022,555 (865,409 permanent and 157,146 temporary).

During March homes were provided by new building, repair of uninhabitable houses and conversion for 17,684 families, compared with 14,767 in February and 14,112 in January. This brings the total number of families rehoused by these methods under the post-war programme to 1,307,510. This total does not include homes provided in Service camps or requisitioned properties.

SUMMARY OF HOUSING PROGRESS REPORTS
(Post-war Programme)

	England and Wales		Scotland		Great Britain	
	March 31	*Dec.* 31	*March* 31	*Dec.* 31	*March* 31	*Dec.* 31
Completed houses and flats						
Permanent	769,318	730,621	96,091	90,897	865,409	821,518
Temporary	124,970	124,970	32,176	32,176	157,146	157,146
Total	894,288	855,591	128,267	123,073	1,022,555	978,664
Under construction						
Permanent	169,274	169,412	32,779	31,996	202,053	201,408
Tenders approved (*a*) (local authority new houses) ...	781,341	751,811	127,628	120,968	908,969	872,779
Licences and approvals issued (*a*) (Private builders new houses)	147,947	140,091	7,771	7,234	155,718	147,325
Tenders approved and licences issued (*a*) (New houses all agencies including rebuilt houses) ...	1,006,993	966,235	140,198	132,750	1,147,191	1,098,985
Additional homes provided (*b*)...	1,173,338	1,132,055	134,172	128,892	1,307,510	1,260,947

(*a*) Includes dwellings under construction and completed.
(*b*) Excludes homes provided in Service camps or requisitioned properties.

IN PARLIAMENT

Cost of Rent Subsidies

ON May 8, in the House of Commons, MR. OSBORNE asked the Minister of Local Government and Planning what was the estimated total cost of rent subsidies, including local and national accounts.

MR. DALTON replied that the figure was about £60 million for 1950-51.

Waiting Lists

On May 8, MR. BOSSOM asked the Minister of Local Government and Planning in view of the fact that the waiting lists held by local authorities for housing, in over 80 per cent. of the cases, increased during 1950, what steps he was taking to provide accommodation for the additional workers it would be necessary to bring into factory areas under the new rearmament programme.

MR. DALTON replied that there was no ground for the statement made in the first part of the question.

Fuel Saving Appliances

MR. NABARRO asked the Minister of Local Government and Planning, on May 8, to what extent, when allocating global sums to local authorities during 1951-52 in respect of building licences for private work, he took into consideration the importance of permitting the granting of licences by such local authorities to all applicants seeking to install fuel saving equipment and plant, with special reference to coal and coke economy.

MR. DALTON said the equipment to save fuel in small houses generally cost less than £100, and so required no building licence.

Quality of Paintwork

On May 8, MISS HORNSBY-SMITH asked the Minister of Works why, in connection with letting contracts to the building industry for work embracing painting operations, he specified a short closed list of paint manufacturers, from which many well-known and reputable firms were excluded whose products might be obtainable at more economic prices; what were the qualifications for inclusion in this list; and if he would make a statement.

MR. BROWN said that in order to ensure paintwork of high quality and long life in Crown buildings, and Government buildings taken on long lease, the decorators' choice of paint was at present limited to the products of 21 firms which had undergone rigorous tests and were guaranteed. For other purposes this restriction did not apply. Any reputable manufacturer whose paint passed the tests, and who would give the required guarantee of performance, could secure entry to the limited list. He promised to consider cases which Miss Hornsby-Smith might send him.

The House of Lords

On May 8, MR. EMRYS HUGHES asked the Minister of Works what was the estimated cost of renovating the House of Lords.

MR. BROWN said the figure was £32,500.

The Thatching Craft

MR. DIGBY asked the Minister of Works, on May 8, if his attention had been drawn to the anxieties of the Dorset Master Thatchers' Association about the future of their ancient craft; and if he was prepared to abolish the regulation that a building licence must be obtained where the cost of thatching a building was estimated to be more than £100, since the materials used in thatching were not controlled or scarce and thatchers were not employed on any other type of building work.

MR. BROWN said he had not heard that the building licensing regulations had caused any difficulty to thatchers. If, however, the hon. member had any particular case in mind, he would be glad to look into it.

The Repair Limit

On May 8, MR. REMNANT asked the Minister of Works whether in view of increased cost of building materials, he would consider raising the free limit of £100 on repairs.

MR. BROWN said that this point would be among those to be considered in deciding on the amount which might be spent without licence in the period beginning July 1 next.

Building Licences

MR. MACLEAVY asked the Minister of Works, on May 8, if he would state the number of building licences which his department had granted since March, 1951, to industrial firms in respect of alterations to or construction of buildings for recreational purposes; and the total number of applications received over the same period.

MR. BROWN said that 37 such licences had been granted since March 1 last. Precise figures of the number of applications were not readily available, but they amounted to about double the number granted.

On May 8, MR. MARPLES asked the Minister of Works what steps he took when granting licences for building civil engineering construction to ensure that any steel required was available.

MR. BROWN said the answer was none.

Steel for Defence Building

On May 10, MR. MARPLES asked the President of the Board of Trade whether he would remove temporarily the import duty on those steel reinforcing bars which were specially imported for use on the building work of the defence programme.

SIR HARTLEY SHAWCROSS said he was always prepared to consider applications for adjustment or removal of import duties with a view to making appropriate recommendations to the Chancellor of the Exchequer. In general, however, there were no powers under existing legislation to make variations in duties on iron and steel goods imported by particular firms or for particular purposes.

The Tarran Low-cost Bungalow

On May 8, MR. FORMAN asked the Secretary of State for Scotland if he would now state his decision on the suitability of the Tarran low-cost bungalow for local authority housing.

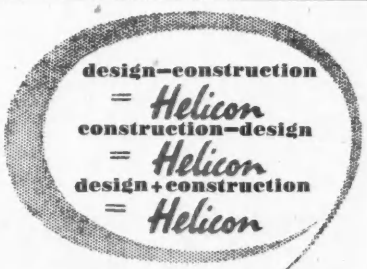
MR. MCNEIL said that the Building Research Station had now completed their investigation into the proposed method of construction and had reported that, as at present designed, the house fell below the recommended standards of structural efficiency in the following respects: the party wall was not strong enough and would have to be given additional lateral support; as designed it did not provide sufficient sound insulation to conform even with normal standards which he did not consider to be high; and there would be, he was afraid, a risk that fire would spread across the top of the wall at ceiling level. The edges of the granolithic floor finish, which were exposed to rainwater shed from the external walls, were likely to allow water penetration into the floor with resulting dampness. There was also a serious risk of condensation in the walls and roof.

The report added that under normal conditions of usage and maintenance the bungalow was not considered to be sufficiently durable for a life of 60 years. In these circumstances, while he was at all times anxious to encourage more economical building, he regretted he could not, under existing legislation, approve the bungalow for subsidy purposes.

He wanted to make two points clear. The Building Research Station's report related not to the original bungalow, estimated to cost £500, but to that bungalow as materially improved to meet the initial criticisms of the experts as regarded standards and equipment. It should be appreciated that, while he had no precise figures, this improved type would cost, he was assured, around £1,000. The second point was that the criticisms did not apply to the Dorran concrete bungalow designed by the same firm which was structurally sound and had already been approved by the Building Research Station and his Department for erection by local authorities.

MR. TARRAN'S STATEMENT

AT a Press conference held in London on May 8 before Mr. Hector McNeil's statement was known, Mr. Robert G. Tarran (originator of the bungalow), referred to the extraordinarily long delay which had been experienced in obtaining an official opinion on the project. For almost nine months Government housing authorities, including the Building Research Station, had been investigating the qualities of the bungalow, he declared. So far as he was aware, no structural faults had been found which could not easily be remedied without adding to the cost. An official decision on the house could have been given three to six months ago, he maintained.



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M-W.50

FESTIVAL OF BRITAIN

List of Firms Engaged on Some of the South Bank Buildings

THE following is a list of contractors and sub-contractors in connection with the principal buildings and exhibits at the South Bank Exhibition:—

ADMINISTRATION BLOCK

Architects, Architects' Co-operative Partnership.

Sub-contractors (nominated): steel windows and doors, Williams and Williams; flooring tubes and beams, Morris Bowden Plastic Co.; steel trusses, English Bridge and Struct. Eng.; bipods, tubes and beams, Scaffolding (G.B.), Ltd.; terrazzo tiling, Jaconello, Ltd.; steel trusses, Sommerfelds, Ltd.; strip flooring, Horsley Smith and Co.; supply and fix 80 ft. flagstaff, Camper and Nicholson, Ltd.; covering walls (display), with braid, etc., Skellorn and Edwards and Co.; fabrication and erection of Royal Pavilion, Samuel Elliott and Sons, Ltd.

Sub-contractors (direct): tile paving, Carter and Co., Ltd.; pitchmastic floors, Ragusa Asphalte Co.; felt roofing, Macartneys, Ltd.; chrome curtain track, Pryke and Palmer, Ltd.; glazing, British Challenge; French polishing, Turners Polishers, Ltd.; painting, Kings (BDJ), Ltd.; tiling and paving, W. B. Simpson and Sons; double leaf gates to Royal Pavilion, A. J. Binns, Ltd.; erection of canopies, Carter-Horseley, Ltd.

WATERLOO-ROAD ENTRANCE INFORMATION COURTYARD AND RESTAURANT

Architects, Architects' Co-operative Partnership.

Sub-contractors (nominated): Aluminex glazing, Williams and Williams, Ltd.; canal and fairway railings, E. C. Blackmore, Ltd.; steelwork, Dawnay's, Ltd.; rings for and fixing of canvas panels, Scaffolding (G.B.), Ltd.; balustrade to perimeter, Wainwright and Waring, Ltd.; Weyroc flooring tiles, Morris-Bowden Plastic Co.; paybox units and w.c. cubicles, Holoplast, Ltd.; strip flooring, Horsley Smith and Co., Ltd.; double doors, Monk Metal Window, Ltd.; tel. benches, post boxes, etc., Samuel Elliott and Sons; counter in Information offices, Geo. Parnall and Co., Ltd.; fencing and gates, A. J. Binns, Ltd.; operator's kiosk, Fredk. Sage and Co., Ltd.; fans and shutters, Saunders and Taylor, Ltd.; steelwork to kiosks and control point, K. and A. Sommerfeld, Ltd.; four tel. kiosks (information), Harris and Sheldon; 11 flagstaffs, Ernest W. Perrett, Ltd.; flooring in C.O.I.D. offices, B. Holden and Co., Ltd.; three kiosks and elec. work to each, Hickman, Ltd.; one coldroom, Pressed Steel Co.; work to fairway, J. Whitehead and Sons; celotex insulating board, Insulatall Services, Ltd.; various kitchen fittings, James Stott and Co.; making tests on smoke generator, Airscrew Jicwood; asbestos cement P.O., Univers. Asbestos Co.; Permaply, Venesta, Ltd.; san. fittings, Pryke and Palmer, Ltd.; windows, Linden Doors, Ltd.; flush doors, John Sadd and Sons, Ltd.; mortice locks, etc., Jas. Gibbons, Ltd.; three no. seat units, J. Beardmore, Ltd.; fencing and gates, A. J. Binns, Ltd.; screens, hanging canopies, P.O. counter, etc., Samuel Elliott, Ltd.; C.O.I.D. office doors, P. C. Henderson, Ltd.; canvas screens, Ratsey and Lapthorne, Ltd.; No. 1 Gate, Grundy and Arnatt, Ltd.

Sub-contractors (direct): Asbestos cement decking, Boddy Roofing Co.; felt roofing and top dressing to fairway screen, Macartneys, Ltd.; quarry tiling, W. B. Simpson and Sons, Ltd.; No. 40 uprights, Wainwright and Waring; fixing W.I. railings, A. Binns, Ltd.; staining etc., tel. encl., Turner Bros. Polishers; alterations to kiosks, J. and W. Shale, Ltd.; handrailing to kiosks, P. H. Barker and Sons; insulating board, Tentest Fibre Board Co.; bar fittings, King's B.D.J., Ltd.; trench covers, Gardiner Sons and Co.; domed roof lights, Pilkington Bros., Ltd.; grilles to openings J. and W. Shale, Ltd.; flush doors, Barker and Son, Ltd.; cover strips, Rippers, Ltd.; sawn and wrot deal, Montague Meyer, Ltd.; rainwater shoes, F. Braby and Co.

THE LAND OF BRITAIN

Architect, H. T. Cadbury-Brown, A.R.I.B.A., assistant R. W. Finch, A.R.I.B.A.; display designer, V. Rotter; consulting engineers, Freeman, Fox and Partners; landscape consultant, P. Youngman, M.A., F.I.L.A., A.M.T.P.I.

General contractors, Richard Costain, Ltd.

Sub-contractors: aluminium entrance cones, Carter-Horseley, Ltd.; artificial stone, Costain Concrete Co., Ltd.; structural steel, S. and C. Walmsley; precast concrete floor beams, Concrete, Ltd.; electric wiring, Troughton and Young; ventilation fans, Woods of Colchester, Ltd.; sound system, Central Rediffusion Services, Ltd.; landscaping, Marcel De Smet; door mats, United London Workshops for the Blind; exit signs, Strand Electric.

NATURAL SCENE AND THE COUNTRY

Architect, Brian O'Rorke, A.R.A.

Sub-contractors: Dome lights, British Challenge Glazing Co.; structural steelwork, S. and C. Walmsley, Ltd.; asbestos sheeting, Universal Asbestos Manufacturing Co.; woodwool roofing slabs, Halcrete (Precision Panels), Ltd.; roofing felt, F. McNeill and Co., Ltd.; steel windows and steel louvres and gearing for canvas louvres, Henry Hope and Sons, Ltd.; Bison floor slabs, Concrete, Ltd.; tubular steel gates, animal pens, "Supa Tracks," sliding door gear and trough flower boxes, G. W. King, Ltd.; Aluminex patent glazing and screens, Williams and Williams, Ltd.; metal lathing and plaster, wavy wall and suspended ceilings, Expanded Metal Co., Ltd.; handrailing, S. W. Farmer & Son, Ltd.; tubular steelwork, Scaffolding Great Britain, Ltd.; air conditioning for animals and plants, Ozonair, Ltd.; wiring and conduits, Troughton and Young, Ltd.; door furniture, The Willen Key Co. (1946), Ltd.; canvas and booms, Deans Blinds (Putney), Ltd.; tower for wind pump, W. H. Smith and Co.; paintwork on asbestos, Tretol, Ltd.; stone paving, Gilliam and Co., Ltd.; cold room, Pressed Steel Co., Ltd.; title lettering, Dales Lettering, Ltd.

MINERALS OF THE ISLAND PAVILION

Architects, Architects' Co-operative Partnership.

Sub-contractors (nominated): balusters, handrails, E. C. Blackmore, Ltd.; Weyroc flooring, Morris Bowden Plastic Co.; footbridge between Administration and Mining blocks, Horseley Bridge and T.P.; smoke generation equipment, Airscrew Jicwood, Ltd.; welded tubular steel bridge between mining and power and production pavilions, Scaffolding (G.B.), Ltd.; artificial smoke generating plant, The Airscrew Co., and Jicwood, Ltd.; floodlighting equipment, B.T.H.; ventilation, Ventaxia, Ltd.; exit signs, Venrico, Ltd.; precast slabbing, Costains Concrete, Ltd.

Sub-contractors (direct): Roofing felt, Macartneys, Ltd.; quarry tiling, Camden Tile and Mosaic Co.; pitchmastic paving, Ragusa Asphalte Paving Co.

POWER AND PRODUCTION PAVILION

Architects, George Grenfell Baines, A.R.I.B.A. A.M.T.P.I., in collaboration with H. J. Reifenberg, Dipl. Ing. Arch.

General Contractors, Richard Costain, Ltd.

Sub-contractors: Structural steel, Scaffolding (Great Britain) Ltd.; asbestos cement roofing and cladding, Turner's Asbestos Cement Manufacturing Co., main hall, and Universal Asbestos Manufacturing Co., side hall; exposed aggregate per cent. concrete work, Costain Concrete Co.; yellow stock bricks, Eastwood Sales; pre-cast concrete floor slabs, Holland & Hannen and Cubitts, Ltd.; aluminium screens, doors and windows, The Crittall Manufacturing Co., and Mellowes and Co.; loading doors, Geo. W. King; steel doors and pressed steel frames, Mellowes and Co.; armour plate door, Pilkington Bros.; roofing to galleries, Macartney; circular roof lights, W. T. Ide; Indasco floorings, R. H. Catterall and Co.; terrazzo stairs, Art Pavements and Decorations; hardwood floor, Bennett's Wood Flooring (Tungit) Co.; paving slabs, Empire Stone Co.; steel escape stairs, Norman Walton and Co.; balustrading, Kaleyards, Chester; door furniture, Dryad Metal Works; ventilation, Brooks Air and Heat Systems; ventilating grills, Colt Ventilation; service lift, Hammond and Champness; sanitary fittings, Edward Marshall, John Bolding and Sons, and Shanks and Co.; tilings, Edward Marshall; electric wiring, Troughton and Young; electric fixtures and signs, Troughton and Young, and Lundsigns (Lund Bros. and Co.), Ltd.; floodlighting equipment, The Edison Swan Electric Co.; switch panels, The English Electric Co.; turbine runner exhibit, The English Electric Co.; telephones, G.P.O.; light signals and watchman's control points, Racecourse Equipments; fire alarms, Standard Telephones and Cables; electric clocks, Baume and Co.; public address, Central Rediffusion Services.

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SEA AND SHIPS

Architects, Basil Spence and Partners.

Murals and sculpture (excluding display): Mural painting, John Hutton; sculpture, Siegfried Charoux, A.R.A.; sculpture "Neptune," Keith Godwin, A.R.C.A.; mural painting, Tristram Hillier; mural, Fisheries, James Boswell, A.R.C.A., F.S.I.A.; mural, Shipbuilding, George Skolly, K.M.C.; mobile sculpture fountain, Richard Huws, B.Eng. M.S.I.A., A.I.L.A.; sculpture, Fisheries, Maurice Lambert, A.R.A.

General contractors, Richard Costain, Ltd.; display contractors, G. and W. Waller, Ltd.

Sub-contractors for the structure: Excavation, Richard Costain, Ltd.; foundations, Richard Costain, Ltd.; asphalt, Limmer and Trinidad Lake Asphalt Co., Ltd.; concrete blocks, Siegwart Floor Co., Ltd.; stone, Stoneycombe Lime and Stone Co., Ltd.; structural steel, Fleming Bros.; fireproof construction, Sundeala Board Co., Ltd.; tiles, Edward Marshall, Ltd.; special roofings, John Edgington and Co., Ltd., Horsley Bridge and Thomas Piggott, Ltd. (Lamella), The Ruberoid Co., Ltd., Hugh Twaddle, Ltd. (aluminium), and Tentest Fibre Board Co., Ltd.; roofing felt, The Ruberoid Co., Ltd.; partitions, W. H. Colt, Ltd. (Colterro lath); patent glazing, Williams and Williams, Ltd. and Monk Metal Window Co.; patent flooring, Horsley Smith and Co. (Hayes), Ltd. (caulked hardwood decking); waterproofing materials, National Coal Board (Synthapruf); walls, Universal Asbestos Manufacturing Co.; fixing stair treads, Carter, Horsely, Ltd..

Sub-contractors for the equipment: Electrical wiring, Troughton and Young; electric light fixtures, Edison Swan Electric Co., Simplex Electric Co., and Troughton and Young (Lighting), Ltd.; ventilation, Ventaxia, Ltd.; sanitary fittings, Pryke and Palmer, Ltd.; stair treads, British Aluminium; door furniture, Ingersoll, Ltd.; steel/iron staircases, S. W. Farmer, Ltd., and Robert L. Priestly, Ltd.; handrail balustrades, Saunders and Taylor, Ltd.; decorative plaster, David Esdaile, Ltd. and Clark and Fenn, Ltd.; metalwork, G. A. Harvey and Co. (copper lining to pool), Whittingham and Mitchell, Ltd. (ship's gangways), Fredk. Braby and Co., Ltd., Samuel Elliott and Sons (Reading), Ltd., Scaffolding (Great Britain), Ltd., and Troughton and Young, Ltd.; joinery, City Display Organisation; clocks, Baume and Co., Ltd.; ship models, Bassett Lowke, Ltd.; marine diesel engine model, Doxford, Ltd.

TRANSPORT PAVILION

Architects, Arcon; Consultant, Felix Samuely, B.Sc. (Eng.) Lond., A.M.I.C.E., M.I.Struct.E., F.I.A.S., M.I.W.

General contractors, Messrs. Richard Costain, Ltd.

Sub-contractors (for the structure): Pre-cast floor units, Holland & Hannen and Cubitts; pre-cast stair units and artificial stone, Liverpool Artificial Stone, Costain Concrete and Girlingstone; structural steel, Appleby Frodingham; fireproof construction, none special; special roofings, Turners Asbestos; roofing felt, Ruberoid; glass, Pilkingtons, via Williams and Williams; patent glazing, Williams and Williams; patent flooring, (terrazzo), Art Pavements, (tiles) Carters, (magnesite) S. Bennett, (cold asphalte) Cawood Wharton; electric wiring, Troughton and Young; electric light fixtures, Troughton and Young, B.T.H. and Wessex Guild; sanitary fittings, Pryke and Palmer; stair treads, Liverpool Artificial Stone and Art Pavements; door furniture, Williams and Williams; metal windows, Williams and Williams; window furniture, Williams and Williams; telephones, G.P.O.

Sub-contractors for decoration and specialities: Metalwork (balustrade and handrails), Wainwright and Waring; joinery, plastic finishes by Warerite and Holoplast; tiling (floor), Carters, Art Pavements and Philip Flooring (Cork); clocks, Baume and Co.; signs, Milner Gray; paint, R. Gay and Co.; and asphalt platform for G.P.O. tubes and canopy roofs, Macartney, Ltd.

TURNTABLE CAFE AND BEER VAULT

Architect, H. T. Cadbury-Brown, A.R.I.B.A.; assistant, R. W. Finch, A.R.I.B.A.

Interior designers, T. Bliss and G. Subiotto, A./A.R.I.B.A.; consulting engineers, Freeman, Fox and Partners.

General contractors, Richard Costain, Ltd.

Sub-contractors: Structural steel, Laidlaw Smith; bricks, The High Brooms Brick and Tile Co., Ltd.; artificial stone, Costain Concrete Co., Ltd.; terrazzo,

W. B. Simpson and Sons, Ltd.; electric wiring, Troughton and Young; electric light fittings, Thorn Electrical Industries, Ltd.; electric neon sign, Major Equipment Co., Ltd.; Miniature Garden, Seyemon Kusumoto, F.R.H.S.

DOME OF DISCOVERY

Architect, Ralph Tubbs, A.R.I.B.A.; consulting engineers, Freeman, Fox and Partners.

General contractors, Richard Costain, Ltd.

Sub-contractors: Roof structure, Horseley Bridge and Thomas Piggott, Ltd.; main ribs and apron, Structural and Mechanical Development Engineering, Ltd.; drawn aluminium sections and sheeting for roof and apron, Imperial Chemical Industries, Ltd.; rivets for roof, Aircraft Materials, Ltd.; rivets for steelwork, S. and C. Walmsley; Bison precast floor slabs, Concrete, Ltd.; Hyrib expanded metal, The Trussed Concrete Steel Co., Ltd.; Presweld beams, Hill (West Bromwich), Ltd.; metal staircases, Fredk. Braby and Co., Ltd.; balustrades, Bayliss, Jones and Bayliss, Ltd.; floor tiles, W. B. Simpson and Sons; tiles to washroom shelves, Carter and Co. (London), Ltd.; lino, Catesbys, Ltd.; window and special aluminium doors, Williams and Williams, Ltd.; sliding-folding doors, Esavian, Ltd.; hardwood handrails, D. Burkle and Son, Ltd.; ironmongery, Rennis, Ltd., and J. D. Beardmore and Co., Ltd.; locks, Locks, Ltd.; panic bolts, Willen Key Co.; wire mesh grilles, B.R.C. Engineering Co., Ltd.; escalator, J. and E. Hall, Ltd.; electric installation, Troughton and Young, Ltd.; electric light fitting, Troughton and Young, Ltd.; external spot-light fittings, The Edison Swan Electric Co., Ltd.; ventilation, Via-Duct Heating and Ventilating Co., Ltd.; aluminium spinnings, Alfred A. Corre and Co., Ltd.; sanitary fittings, Pryke and Palmer, Ltd.; rainwater goods, Turner Brothers Asbestos Co., Ltd.; canvas, John Edgington's, Ltd.; painting, Kings (B.D.J.), Ltd.; paint, R. Gay and Co.; special cement finish, Guntex, Ltd.

THE PEOPLE OF BRITAIN

Architect, H. T. Cadbury-Brown, A.R.I.B.A.; assistants, F. P. Softley, A.R.I.B.A. and Mrs. E. R. Dale, Dip. Arch. (Columbia); display designer, James Gardner, O.B.E., R.D.I., F.S.I.A.; consulting engineers, Freeman, Fox and Partners; consulting landscape architects, H. F. Clark, F.I.L.A. and Mrs. M. T. Shephard, A.I.L.A.

General contractors, Richard Costain, Ltd.

Sub-contractors: Bricks, The High Brooms Brick and Tile Co., Ltd.; artificial stone, Costain Concrete Co., Ltd.; steelwork, S. and C. Walmsley; precast concrete floor beams, Concrete, Ltd.; special roofing (cavity decking), Turners Asbestos Cement Co., Ltd.; flooring tiles, Armstrong Cork Co., Ltd. (Accotile); electric wiring, Troughton and Young; electric light fittings, Troughton and Young, Ediswan, B.T.H., G.E.C. and The Merchant Adventurers, Ltd.; ventilation (fans), Keith Blackman, Ltd.; sanitary fittings, Pryke and Palmer, Ltd.; sliding door gear, Geo. W. King, Ltd.; metalwork (balustrade), Tylers, Ltd.; portable barriers, Roffé, Ltd.; miniature garden, Seyemon Kusumoto, F.R.H.S.; aluminium entrance cones, Carter-Horseley, Ltd.; sound system, Central Rediffusion Services, Ltd.; main doors, Duncan Tucker (Tottenham), Ltd., exit signs, Strand Electric.

THE SKYLON

Architects, Powell and Moya. Consultant engineer, Felix J. Samuely, B.Sc. (Eng.), A.M.I.C.E.

Main contractors (for foundations only), Messrs. Richard Costain, Ltd.; sub-contractors for the supply and erection of the whole of structural portions, B. I. Callender's Construction Co., Ltd.; aluminium louvred units, Braby, Ltd. (the fixing of these units was done by Messrs. B.I. Callender),

Sub-contractors for inside electrical installations: B.I. Callender's Construction Co., Ltd.; anemometer, R. W. Munro, Ltd.; steel ropes for wind and supporting guys, Wrights Ropes; checkerplate covers for pylon bases, H. and C. Davis and Co.; extensometer, J. E. Baty and Co., Ltd.

LION AND UNICORN

Architects, R. Y. Goodden, R.D.I., A.R.I.B.A., F.S.I.A., and R. D. Russell, R.D.I., F.S.I.A.

General Contractors, Messrs. Holland & Hannen and Cubitts, Ltd.

Sub-contractors: Steelwork, S. and C. Walmsley, Ltd.; Lamella roof, J. Long and Sons (Bath), Ltd.; main windows and glazing, James Clark and Eaton, Ltd.; external rendering and plasterwork, Thomas and Frediani; joinery, John Sadd and Sons, Ltd.; York stone floor, Brookes, Ltd.; oak floor to gallery, Horsley Smith and Co. (Hayes), Ltd.; ventilation, Via-Duct Heating and Ventilating Co., Ltd.; electrical installation, Engineering Service Installations, Ltd.; precast concrete floor units to gallery, Girlingstone Manufacturers; roof covering, Ruberoid Co., Ltd.; sanitary fittings, Adamsez, Ltd.

THE UNICORN RESTAURANT

Architects, R. Y. Goodden, R.D.I., A.R.I.B.A., F.S.I.A., and R. D. Russell, R.D.I., F.S.I.A.

General contractors, Messrs. Holland & Hannen and Cubitts, Ltd.

Sub-contractors: Canvas and rigging, John Edgington and Co., Ltd.; main masts, The London Aluminium Co., Ltd.; joinery, J. Long and Sons (Bath), Ltd.; roof covering, Ruberoid Co., Ltd.; sanitary fittings, Adamsez, Ltd.; ventilation, Engineering Service Installations, Ltd.; kitchen equipment, James Stott and Co., Ltd.

REGATTA RESTAURANT

Architects, Misha Black, O.B.E., F.S.I.A., M.Inst.R.A., and Alexander Gibson, A.R.I.B.A., A.A.Dipl.; assistant architects, John Diamond, B.Arch., A.R.I.B.A., Stephen Garrett, M.A., A.R.I.B.A., and John Nightingale, A.R.I.B.A., A.A.Dipl. Designers of interiors: restaurant, Misha Black and Alexander Gibson; Press room, Robert Gutmann, F.S.I.A., and Gunther Hoffstead, M.S.I.A.; structural engineering consultants, Freeman, Fox and Partners; murals and sculptures, external terra cotta mural, Victor Passmore; external mural on main river terrace, Laurence Scarfe; mural in main entrance hall, John Tunnard; sculpture in garden, Lynn Chadwick; wall sculpture in first floor restaurant and brass hands on main doors, Mitzi Solomon Cunliffe; landscape and planning, Frank Clark, A.I.L.A., assistant, Maria Shepherd, A.I.L.A.

General contractors, Messrs. Richard Costain, Ltd.

Sub-contractors: Asphalt and roofing felt, Macartney, Ltd.; artificial stone, Stuarts Granolithic Co. and Liverpool Artificial Stone; terra cotta, Carter and Co.; structural steel, Matthew T. Shaw and Co., Ltd.; pressed steel fascia casings and copings, John Thompson Beacon Windows, Ltd.; slate cills and copings, Bow Slate and Enamel, Ltd.; obscure glass, Chance Bros., Ltd.; patent flooring, Bison floors; gas water heaters, Ascot Gas Water Heaters, Ltd.; electric wiring, Troughton and Young, Ltd.; electric light fixtures, Oswald Hollman, The Wessex Guild, Troughton and Young, Ltd., and Merchant Adventurers of London, Ltd.; electric water heaters, Sadia, Ltd.; ventilation, G. N. Haden and Sons, Ltd.; sanitary fittings, Pryke and Palmer, Ltd.; stairtreads to main staircase, Samuel Elliott and Sons, Ltd.; door furniture, Nettlefold and Moser, Ltd., Comyn Ching and Co., and Locks, Ltd.; steel windows, John Thompson Beacon Windows, Ltd.; telephones, G.P.O.; rolling shutters, Thornborough and Sons (Manchester), Ltd.; fireproof doors, Haywards, Ltd.; pressed steel staircase, Haywards, Ltd.; venetian blinds, Tidmarsh and Sons, Ltd.; metalwork, Light Steelwork (1925), Ltd. and Universal Furring and Lathing Co.; doors, John Sadd and Sons, Ltd.; bar fittings, Gaskell and Chambers, Ltd.; decorative glass, T. and W. Ide, Ltd.; marble, J. Whitehead and Sons, Ltd.; plastic sheetings, Bakelite, Ltd.; textiles, Warner and Sons, Ltd., Barlow and Jones, Ltd. and A. C. Gill, Ltd.; curtains, Hamptons, Ltd.; wallpapers, John Line and Sons, Ltd.; carpet, Templeton, Ltd.; furniture, Goodearl Bros.; garden construction, John Waterer and Sons and Crisp, Ltd.; external plants, Hillier and Son, Perry, Ltd., Slocock, Ltd. and Sunningdale Nurseries; indoor plants, West End Flower House and Elm Garden Nurseries; bedding plants, Fromow, Ltd.; clocks, Baume and Co.; neon signs, Electrolumination, Ltd.; service lifts, Marryat and Scott, Ltd.; paint, Agraphite, Ltd. and R. Gay and Co.

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SEASIDE EXHIBIT

Architects for the architectural structure and for display work, Eric Brown and Peter Chamberlin, L./A.R.I.B.A.

General contractors, Messrs. Holland & Hannen and Cubitts, Ltd.; display, Co-ordinated Services, Ltd.; Engineering services.

Sub-contractors: Mast structure, Stewart and Lloyd, Ltd. and British Ropes, Ltd.; velariums, John Edgington and Co., Ltd.; welding, London Welding Co.; special structures, Morfax, Ltd.

WATERLOO BRIDGE-ROAD ENTRANCE AND TOWER

Architects, Maxwell Fry and Jane Drew, FF.R.I.B.A.

Main Contractors, Messrs. Kirk & Kirk, Ltd.

Sub-contractors: Water heaters, Aidas Electric Co.; windows, Aygee, Ltd.; steelwork, etc., Alphamin, Ltd.; handrailing, Allen and Greaves, Ltd.; accotile flooring, Armstrong Cork Co.; gates and ironmongery, Bolton Gate Co.; lighting fittings, Best and Lloyd; office curtaining, Bourne and Hollingsworth; nylon rope, British Ropes, Ltd.; neon lighting, Bective Electric Co.; clocks, Baume and Co.; weldmesh, British Reinforced Concrete; flooring, Cellulin Flooring Co.; tiles, Carter and Co.; gates and sculpture turntable, H. and C. Davies; roller shutter-steel, Dennison Kett and Co.; Doverite finish to barriers, Dover, Ltd.; steelwork, English Bridge and Structural Engineering Co., Ltd.; canvas, John Edgington and Co.; sanitary fittings, B. Finch and Co.; sanitary ware and ironmongery, W. N. Froy and Sons; neon lighting, Franco British Signs, Ltd.; steel plate, S. W. Farmer; viewing deck lights, G. H. Green and Co.; handrailing and perforated sheets, G. A. Harvey and Co.; lift, Hammond and Champness, Ltd.; tubecon, Howarth and Sons; light fittings, Hume Atkins and Co.; handrailing, G. Johnson Bros.; canvas sails, Lucas and Sons; maple flooring, J. Latham; decorative lettering on glass, The London Sandblast Decorative Glassworks, Ltd.; signs, The Lettering Centre; special primer undercoat, International Paints, Ltd.; plumbing and ventilation, Matthew Hall and Co., Ltd.; metal doors and windows, Maclean and Co.; furnishing, Maples; paints and distempers, Nicholls and Clarke; glass discs and domes, Pilkington Bros.; signs, Pearce Signs; cloakroom fittings, Rennis, Ltd.; roofing and ceilings, Sundeala Board Co.; steelwork, Scaffolding (Great Britain), Ltd.; weldmesh, C. Stephens; electrical work, Troughton and Young, Ltd.; glazing, sliding doors and windows, Williams and Williams; fittings for glass discs, William Green and Co.; concrete ballards, Wettern Bros.; bolts and door springs, Willen Key Co.

SPORTS SECTION

Architects, Gordon and Ursula Bowyer, A./A.R.I.B.A., M.S.I.A.

General contractors, Messrs. Kirk and Kirk, Ltd.; steelwork, Johnson Bros. (Steel Erectors); special metalwork, George Johnson Bros., Ltd.; canvas awnings, John Edgington and Co., Ltd.; electrical, Troughton and Young, Ltd.; general display contractor, Russell Bros. (Paddington); special displays, Reliance Shopfitters, Ltd.; display contractor (fishing section), Frank Batty and Smith.

WATER DISPLAY AND FAIRWAY

Architect, H. T. Cadbury-Brown, A.R.I.B.A.; consulting engineers, Freeman, Fox and Partners; consulting water engineers, Ministry of Works; consulting lighting engineers, McLellan and Partners.

General contractors, Richard Costain, Ltd.

Sub-contractors: Under-water lighting, Ministry of Works; artificial stone, Costain Cement Co., and Wates Ltd.; electric wiring, Troughton and Young; handrails, B. Finch and Co.; electric light fittings, Ediswan and GEC; cast-iron decking, Lion Foundry Co., Ltd.

L.C.C. Educational Building Work

In primary and secondary schools under the control of the London County Council, 8,800 places have been provided since January 1, 1950. Work now in progress will provide a further 22,730 places and the projects for which site work has not yet started, 15,360 more. The erection of four new voluntary schools has also been started and these will provide 1,290 places. New voluntary schools to be started during the next 12 months will accommodate 1,380 more children.

NEWS IN BRIEF

British Standards

The following has been issued by the British Standards Institution from 28, Victoria-street, S.W.1—British Standard for Electroplated coatings of cadmium and zinc on iron and steel (B.S. 1706:1951). (2s. 6d.)

Lake District National Park

The Minister of Local Government and Planning, Mr. Hugh Dalton, has confirmed the designation order for the Lake District National Park which was made by the National Parks Commission last January.

Iron and Steel Exports

As from May 14, the export of iron and steel goods under open general licence will be permitted only if the value exceeds the value of the iron or steel content, calculated at £30 per ton. This licence applies to iron and steel goods specified in Group 6 (2) of the first schedule to the Export of Goods (Control) (Consolidation) Order, 1950.

Lunchtime Lectures

The Institute of Export has arranged another series of lunchtime lectures, to be held at the Merchants' Hall, The Baltic Exchange, St. Mary Axe, E.C.3, during May, June, and July this year. Admission will be by ticket only, available to members and registered students of the Institute free (non-members pay 10s. 6d.), on application (with stamped, addressed envelope) to the General Secretary, 140, Cromwell-road, S.W.7.

Sir Thomas Lawrence Exhibition

Messrs. Thomas Agnew and Sons, Ltd., 43, Old Bond-street, W.1, have organised a loan exhibition of paintings by Sir Thomas Lawrence, P.R.A. Portraits of the Duke of Wellington, William Pitt, Lord Castlereagh, Princess Lieven, Lord Melbourne and Sir Robert Peel are among the 48 pictures which have been lent and which provide a fascinating survey of the vivacious society of Regency England. The entire proceeds of the exhibition will be given to the Association of the Friends of the Bristol Art Gallery. The exhibition is open until June 23.

L.C.C. Flats and Steel Shortage

Housing works of the L.C.C. which are at a standstill on account of the steel shortage (reported in *The Builder* of May 11) are: Work completely stopped — Ocean Estate, Stepney, 222 flats, main contractors, Tersons Ltd.; Mermaid Court, Southwark, 40 flats, Willment Bros., Ltd., (steel for special foundations and pilings). Work unable to proceed: Usk-road, Battersea, 71 flats, Unit Construction Co.; Stockwell-road, Lambeth, 256 flats, Unit Construction Co.; Meridian Extension, Greenwich, 20 flats, Concrete Piling, Ltd.

Firm's Centenary Dinner

A dinner, given by the directors, to celebrate the centenary of Hobbs, Hart and Co., Ltd., was held at the Lysbeth Hall, Soho-square, on May 11. About 260 members, and guests, of the firm heard the chairman, Mr. Ellice-Clark, conclude his speech by saying that he looked forward to the next 100 years' anniversary. The guests were later entertained by a visit to the London Casino to see "Latin Quarter." A booklet has been published giving examples of work carried out and is an interesting historical background to these safemakers' activities.

TRADE NEWS

Convector Fires

The Camelon Iron Co., Ltd., Falkirk, have recently issued a pamphlet dealing with their convector fires. This gives details of both under- and above-floor models with cut-away diagrams showing the principles involved. It is claimed that the fires will burn almost any type of solid fuel at an economical rate of consumption.

A Vacuum Lifting Tool

Thomas W. Ward, Ltd., Albion Works, Sheffield, are manufacturing a new type of tool called the "Limpet" Vacuum Lifter, which is claimed to facilitate the handling of smooth-surfaced materials. They consider that it should prove useful to tradesmen in the building and contracting industries and to sheet metal workers, plastic manufacturers and glass merchants.

Catalogue of Lighting Supplies

The latest edition of Falk's catalogue covers a complete range of "Hitest" cables and flexibles, "Coolex" ironclad switchgear, "Efesca" and "Falks" electrical accessories, "Climax" conduit and conduit fittings, bells and bell material. Printed prices have been calculated to provide a fixed basis upon which price alterations, mainly in percentage form, can be calculated, and alterations ruling on March 12 are shown on an attached price revision sheet which will be brought up to date when necessary. The catalogue is obtainable from Falk Stadelmann and Co., Ltd., 91, Farringdon-road, E.C.1.

New Sink and Bath

Particulars of two new products, the "Hostess" sink and "Neo-Classic" bath, have been issued by Ideal Boilers and Radiators, Ltd. The "Hostess" sink is made of cast iron, with acid-resisting porcelain enamel finish, and it can be supplied with the drainer on the right- or left-hand side, and with or without an overflow. If required, the sink unit can be purchased complete with cabinet. The "Neo-Classic" baths are one-piece apron baths, manufactured of cast iron with porcelain enamel inside and outside. They are designed to build into right- or left-hand corners or into a recess. The bath has a tiling strip round the built-in edge.

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THE SCOTTISH BUILDER

War Damaged Buildings

ALL WORKS for the making good of war damage sustained by buildings which were not totally destroyed are brought within the meaning of "development" for the purposes of the Town and Country Planning (Scotland) Act, 1947, by the provisions of the Town and Country Planning (Amendment) Act, 1951.

The provisions of the Act do not apply to buildings damaged from other than war causes. Also, works for the rebuilding of any building which has been totally destroyed whether by reason of war damage or otherwise are not covered by the Act as these already clearly constitute "development" for the purposes of the 1947 Act. The Act will in practice apply only in areas where the planning authority have taken formal action to reassume control over the restoration of war damaged buildings which otherwise is permitted development.

A circular published, on May 8, by H.M. Stationery Office for the Department of Health for Scotland explains in detail the amending provisions of the Act affecting Scotland and also why they were necessary. It also repeats the advice recently received by the Secretary of State that the joining together of two or more buildings, e.g., dwelling-houses, by making breaches in the internal party walls is not to be regarded as development for the purposes of the Planning Acts, so long as there is no change in the use of the buildings, and so subject neither to planning control nor development charge.

March Housing Figures

THE NUMBER of new permanent houses completed in Scotland in March was 2,013. This brings the number of completions this year up to 5,194. Including accommodation made available by conversion and adaptation of existing premises, requisitioning and in service camps altogether 141,182 homes have now been provided in Scotland since the war. These figures are included in the quarterly housing return issued by the Department of Health for Scotland and published on May 8. March's total of 2,013 new permanent houses includes 1,738 built by local authorities and the Scottish Special Housing Association, 173 by private enterprise and 102 by Government Departments. Houses under construction at the end of March totalled 32,779 compared with 29,787 at the same date last year.

Building and engineering labour employed on the construction of new houses in Scotland at the end of March was 25,100, compared with 23,700 at the end of December and 25,800 at the end of September last year. These figures do not include the number of building and civil engineering workers employed in small works or directly employed by local authorities.

NEW BUILDINGS

Argyllshire.—Plans to be prepared for a scheme of alterations and additions, est. to cost £22,000, to the Gortonvogie Hospital on the Island of Islay.

Ayr.—Plans to be prepared for a new omnibus garage, workshops and offices, for which the architect is Mr. W. Gordon Young, Scottish Motor Traction Co.'s Engineering Superintendent, The Cross, Kilmarnock.

Broomhouse.—Plans in hand for a new chapel and crematorium, etc., at Daldowie, for which the architect is Mr. William Watt, F.R.I.B.A., County-chbrs., Albert-rd., Motherwell-Wishaw.

Dumbartonshire.—Plans to be prepared for 100 houses which the Scottish Special Housing Association, Ltd., will erect at Alexandria. The architect is Mr. A. G. Sinclair, A.R.I.B.A., 15, Palmerston-pl., West End, Edinburgh.

East Kilbride.—Plans to be prepared for new secondary school to be erected at Duncanrig. The architect is Mr. Donald Raey, F.R.I.B.A., Torrence House, East Kilbride.

East Kilbride.—Plans to be prepared for exten-

sions and other additions to the Glasgow-rd. factory, for which the architects are Mitchell, Johnston & Co., 160, West George-st, Blythswood, Glasgow, W.C.2.

Edinburgh.—Plans in hand for a new multi-storey block of offices for the West End, est. to cost £200,000. The architect is Mr. Stewart Kaye, F.R.I.B.A., 13, Thistle-st., West End, Edinburgh.

Edinburgh.—Plans in hand for new church and other buildings which are to be erected at Young-st., Charlotte-sq. and Young-st-la., West End. The architect is Sir Frank Mears, F.R.I.B.A., 44, Queen-st., Edinburgh.

Glasgow.—Plans to be prepared for new buildings for Messrs. Rothley Garages, Ltd., to be erected at Annisland-rd. The architects are Messrs. Wilson, Hamilton & Wilson, F.R.I.B.A., 153, Oxford-st., Gorbals, Glasgow, S.1.

Glasgow.—Plans in hand for the erection at Shieldhall of additions for the Cyproducts, Ltd. The architects are A. & J. Mavor & Co., Ltd., Vincent-sq., Westminster, London.

Glasgow.—Plans in hand for new buildings which are to be erected for the Scottish National Glass and Glazing Co., Ltd., at 14 to 20, Dobbies Loan, Cowcaddens. The architects are Weddle & Thomson, F. & A.R.I.B.A., 216, Bath-st., Glasgow, W.C.2.

Glasgow.—Plans in hand for rebuilding and additions at Pirn-st. for W. & J. Martin, Ltd. The architects are Frank Burnet, Boston & Bell, F. & A.R.I.B.A., 180, Hope-st., Glasgow, W.C.2.

Glasgow.—Plans in hand for a new Catholic secondary school to be erected at Kirriemuir-st., for which the architect is Mr. Thomas Cordiner, A.R.I.B.A., Blythswood-chbrs., West George-st., Blythswood, Glasgow, W.C.2.

Hamilton.—Plans to be prepared for new electricity sub-station to be erected for the South-West of Scotland Electricity Board at Eddlewood. The architect is Mr. John W. MacColl, M.Inst.E.E., 206, St. Vincent-st., Glasgow, W.C.2.

Inverness-shire.—Plans to be prepared for the corporation of Fort William for a scheme of extensions, alterations and additions to the Burgh Public Hall, for which the architect is Mr. A. M. Taunahill, Corporation Master of Works, Cameron-sq., Fort William.

Kirkcaldy.—Plans to be prepared by the East Fife Hospital Board Architects for a new home for the nurses of the Kirkcaldy General Hospital, which is estimated to cost £45,000.

Lanarkshire.—Plans to be prepared for canteen buildings on an industrial estate, for which the architects are George A. Boswell & Ptnrs., 256, West George-st., Blythswood-sq., Glasgow, W.C.2.

Lanarkshire.—Plans in hand for new garage, workshops, offices and filling station which will be erected for Russell, Sterling-rd., Airdrie. The architects are George Arthur & Sons, F. & A.R.I.B.A., Sterling-rd., The Cross, Airdrie.

Lesmahagow.—Plans to be prepared for the Scottish Special Housing Association, Ltd., for 43 houses. The architect is Mr. A. G. Sinclair, A.R.I.B.A., 15, Palmerston-pl., West End, Edinburgh.

Motherwell-Wishaw.—Plans in hand for £60,000 extension for the Lanarkshire Steel Trust, Ltd. The architects are James Monro & Son, F. & A.R.I.B.A., 207, West George-st., Blythswood-sq., Glasgow, W.C.2.

Old Cumnock.—Plans to be prepared for omnibus garage, workshops and offices, for which the architect is Mr. W. Gordon Young, Scottish Motor Traction Co.'s Engineering Superintendent, The Cross, Kilmarnock.

Renfrewshire.—C.C. to erect at the south side of Paisley another new public school. The architect is Mr. Thomas Hepburn, Renfrewshire County Education Officer, Glasgow-rd., Paisley.

Renfrewshire.—C.C. to have plans prepared for new public school for Paisley, for which the County Architect and Master of Works is Mr. Thomas Hepburn, County Education Offices, Glasgow-rd., Paisley.

Stepps.—Plans to be prepared for scheme of houses at the Craigenmair housing site for Lanarkshire C.C. The architect is Mr. Samuel MacColl, F.R.I.B.A., County-chbrs., Beckford-st., Hamilton.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

MAY 22.

***†Colchester Boro'.**—27 flats, Barn Hall site. J. S. Orchard, B.E., 64, West Stockwell-st. Dep. £3 3s. Tenders by June 16.

MAY 25.

***†Bristol City.**—Alterations, St. John's School, Durdham Down; classrooms, South Bristol open-air school; canteen, sculleries, Shirehampton school. J. Nelson Meredith (F.), City Architect, Eagle House, Colston-ave. Dep. £1 1s. each. Tenders by June 18.

***Bromley Boro'.**—Pavilion, Golf Course playing fields. B.E. Dep. £2 2s.

***†Romford Boro'.**—Garden walls, screen walls and gates, Paddock housing estate. A. S. Wilson & Ptnrs., chartered surveyors, 8, Princes-st., S.W.1. Dep. £2 2s. Tenders by June 20.

***Ware U.D.C.**—23 and 24 houses in two contracts at Presdales estate. E. & S., The Priory. Dep. £3 3s.

MAY 26.

***†Essex C.C.**—2 flats and garage, Langdon Hills. H. Conolly (F.), County Architect, Chelmsford.

MAY 28.

***Blandford Forum Boro'.**—6 flats, King's-rd. L. Magnus Austin (F.), 51, Towngate-st., Poole. Dep. £2 2s.

***†Bucks C.C.**—Police houses, Colnbrook. County Architect, Aylesbury. Dep. £2 2s. Tenders by June 22.

***†Crosby Boro'.**—25 bungalows for aged persons, matron's house and reading room, De Villiers-ave. estate. T. W. Crookdake, B.E. & S. Dep. £2 2s.

***†Middlesex C.C.**—Junior school, Melbury-ave., Southall. County Architect, 10, Great George-st., London, S.W.1. Dep. £2 2s. Tenders by June 26.

MAY 30.

Deptford Boro'.—Repairs and decorations to requisitioned house properties. B.E. & S. Dep. £2 2s.

***†Surbiton Boro'.**—4 houses, Fairoak-la., Chessington. R. H. Wright, T.C.

MAY 31.

***Ealing Boro'.**—76 flats, Northolt Grange. C. W. Seddon, B.E. & S. Dep. £2.

***†Eton R.D.C.**—Four flats and four aged persons' bungalows, Fulmer. Sir John Brown, A. E. Henson & Ptnrs., architects, 117, Sloane-st., London, S.W.1. Dep. £3 3s.

***Tonbridge U.D.C.**—60 houses, Cage Farm estate. E. & S. Dep. £3 3s.

***Welton R.D.C.**—12 houses. W. M. Saunders & Ptnrs., architects, 24, Castle-gate, Newark-on-Trent. Dep. £3 3s.

JUNE 1.

***†Bucks C.C.**—School, Water Eaton, Bletchley. County Architect, Aylesbury. Dep. £5 5s. Tenders by July 10.

***†Bucks C.C.**—School, Burnham Priory estate, Slough. County Architect, Aylesbury. Dep. £5 5s. Tenders by July 10.

JUNE 2.

***†Grantham Boro'.**—46 houses, Harrowby-la. area. B.S. Dep. £2 2s.

JUNE 6.

***Beddington and Wallington Boro'.**—16 flats, Marlesford House, Wallington. A. B. Bateman, T.C.

JUNE 14.

***Andover Boro'.**—16 flats, Mead Hedges site. R. S. Offord, B.S. Dep. £2 2s.

JUNE 18.

***Chelmsford Boro'.**—Refreshment pavilion, Central Park. V. J. Willis, B.E., S. & Architect. Dep. £2 2s.

***Lincoln (Lindsey) C.C.**—School, near Lacey-gdns., Louth. Denis Clark Hall (F.), 6, Mason's-yard., Duke-st., St. James's, London, S.W.1.

***Wallasey C.B.**—Shelter and conveniences, Children's Playground, Central Park. Boro' A., Town Hall.

JUNE 20.

***Wandsworth Boro'.**—Public convenience, Leaders-gdns., Ashlone-rd., S.W.15. B.E. & S. Dep. £2 2s.

JUNE 25.

***Gravesend Boro'.**—53 flats, Valley-dr. B.E. & S. Dep. £2 2s.

Gunnersbury Park Joint Com.—Alterations to large mansion at Gunnersbury Park. S. W. Slight, B.Sc., B.E., Town Hall, Acton, W.3.

JUNE 29.

***Peterborough City.**—Buildings for sewerage and sewage purification. J. D. & D. M. Watson, engineers, 18, Queen Anne's-gate, London, S.W.1. Dep. £10 10s.

JULY 30.

***Whitehaven Boro.**—Public hall, Lowther-st. W. H. J. Browne, T.C. Dep. £2 2s.

NO DATE.

***Guildford B.C.**—30 houses and 8 blocks of Duplex houses, Bushy Hill, Merrow. B.E. & S. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MAY 28.

***†Northumberland C.C.**—School furniture and furnishings to Blyth South Farm school. County Architect, Newcastle-upon-Tyne.

MAY 31.

***Twickenham B.C.**—Demolition of Army huts, etc., Bushy Park Camp. B.E.

JUNE 11.

***Finchley B.C.**—Decorations, repairs and minor alterations to various schools and other buildings. P. M. Spencer, A.M.I.C.E., E. & S., 294-296, Regent's Park-rd., N.3. Dep. £2.

ROADS, SEWERAGE AND WATER WORKS

MAY 25.

***†Bristol City.**—New playground, etc., Luckwell-rd. school. J. Nelson Meredith (F.), City Architect, Eagle House, Colston-ave. Dep. £2 2s. Tenders by June 18.

MAY 26.

***†Essex C.C.**—Demolition work, Cowslip-rd. primary school, Woodford. H. Conolly (F.), County Architect, Chelmsford.

GENERAL BUILDING WORK

(LONDON)

Cannon-st. — ALTERATIONS. — Improvements and alterations are proposed at No. 110 by City of London Real Property Co., Ltd., 169, Fenchurch-st., E.C.3. Plans by chief architect, W. H. Rogers.

Cheapside.—OFFICES.—Town Planning approval has been given for block of shops and offices at 107-115, Cheapside, 1-8, Honey Market, and 1-2, Milk-st.-bldgs., E.C.2. Surveyors are Jones, Lang, Wootton & Son, 16, King-st., E.C.2.

Grays Inn.—REBUILDING.—The Honorable Society of Grays Inn has received sanction to expend some £30,000 on demolition and rebuilding of chapel, houses, etc., at South-sq., W.C.1. Architect is Edward Maufe, F.R.I.B.A., 139, Old Church-st., Chelsea, S.W.3.

Southwark.—RECONSTRUCTION.—Reconstruction is proposed by Butler's Wharf, Ltd., at Kitchen's Wharf, Shad Thames, S.E.1, including new warehouses, berths, to cost £200,000. Plans by Thompson, Walford & Fielder, Leadenhall-bldgs., Leadenhall-st., E.C.3.

Stoke Newington.—REBUILDING.—Rebuilding of St. Anne's Convent at Manor-rd., N.16, is contemplated, cost estimated at £80,000. Architects are Charles P. Whiteley & Son, 48, Cannon-st., E.C.4.

Streatham.—EXTENSIONS.—Alterations and extensions to factory at Rowan-rd., S.W.16, for Smith Meters, Ltd. Architects are H. Payne Wyatt, Son & Ptnrs., F.R.I.B.A., 465, Brixton-rd., S.W.9.

Tottenham Court-rd.—REBUILDING.—R. E. Jones, Ltd., are to rebuild, after war damage, west wing of Bedford Corner Hotel, licence granted for £80,000. Architects are T. Mortimer Burrows & Ptnrs., 44, Bedford-row, W.C.1.

Trafalgar-sq.—REPAIRS.—Reinstatement of war damage and repairs, costing about £40,000, at St. Martin's-in-the-Fields. Surveyors are R. H. Marsh & Ptnrs., 54, Brewer-st., W.1. Consultant architect, Douglas W. Harrington, L.R.I.B.A., 32, Craven-st., W.C.2.

Willesden.—FLATS.—Metropolitan Police propose to build 18 flats and a section house at Willesden-la.

(PROVINCIAL)

Atcham.—R.D.C. received approval for 40 houses at Ford.

Barnard Castle.—R.D.C. considering erection of a further 76 houses on three sites.

Bath.—Hugh Baird & Sons, Ltd., Lower Ashley-rd., are to rebuild their war-damaged Broad Quay Maltings. Plans have been prepared by Alfred J. Taylor & Partners, FF.R.I.B.A., 4-5, Bridge-st., with bills of quantities by W. E. Underwood & Sons, 21, Gay-st.

Berwick.—Berwick Presbytery are seeking site for church facilities on Prior Park estate, Tweedmouth.

Billingham-on-Tees.—Thomas Swan & Co., Ltd.,

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NEED FOR
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LUDGATE BROADWAY
E.C.4
CITY 2111/4

Rugeley, Staffs, have approached U.D.C. regarding site for light chemical factory.—U.D.C. has approved plans for additions to Billingham Social Club to provide concert hall, stage, dressing-rooms, etc.—I.C.I., Ltd., to extend platers' shop and erect maintenance building at nylon factory.—Durham C.C. to extend Billingham South Mod. Sch. by means of hutting.

Birmingham.—E.C. propose completion of Colmers Farm Boys' Sec. Mod. Sch., and erection of new Sec. Mod. for Girls.—T.C. propose home for aged, West Heath estate; 25 houses, Brays-rd., Kitwell Farm and Shard End estates. H. J. Manzoni, City E.

Blackburn.—E.C. propose reorganisation of textile dept. at Technical College at £25,000.

Blaydon-on-Tyne.—L. J. Couves & Partners, Carliol House, Newcastle-upon-Tyne, are preparing plans for a power station at Stella North, Blaydon-on-Tyne, for Electricity Brd.

Bournemouth.—Malmsbury & Parsons Dairies, Ltd., are to build a maintenance workshop, etc., Belmont-av. Architect, L. S. Youngman, 15, Groveley-av., Boscombe.

Bournemouth.—M.H. has authorised erection of an administration block for Alderney Waterworks, for which tenders have been invited. Architect is Raglan Squire, F.R.I.B.A., M.S.I.A., 39, Eaton-sq., S.W.1, and the quantity surveyors are Davis, Belfield & Everest, 9, Ashley-pl., S.W.1.

Brighouse.—Governors of Rastrick Grammar Sch. propose extensions to sch.

Brixworth.—R.D.C. approved new sec. mod. schs. at Moulton and Rothwell, for C.C.

Bury.—B.E. to prepare revised plans and estimates for adaptation of "South View," Wilson-st., as hostel for aged.

Carlisle.—T.C. to negotiate for erection of following houses:—50 "Easiform" and 36 traditional with John Laing & Son, Ltd., Dalston-rd.; 20 with A. S. Nixon, Ltd., 83, Lowther-st.; 20 with Barwick Bros., Aipha Mount, Gilsland. All at Harraby neighbourhood unit.

Castle Ward.—R.D.C. Surveyor is preparing plans for temporary public hall, Hazlerigg.

Chatham.—B.C. instructed Rider, Hunt & Partners, Bridge House, Queen Victoria-st., E.C.4, to prepare quantities for old people's dwellings, Churchfield estate.

Cheltenham.—T.C. has approved plans submitted by Louis de Soissons, A.R.A., & Partners, 3, Park Square-mews, N.W.1, for 207 one-bedroom flats, Hesters Way estate. Estimated cost, £312,660.

Cirencester.—Extension of pathological lab., Cirencester Memorial Hospital. Architects, Pyle & Saint, Thomas-st. House.

Coventry.—T.C. recommended to approve 108 flats, Sadler-rd. site, at £104,300.—R.C. School (Wainbody Wood), Kenilworth-rd. Architects, Rolf Hellberg, Coventry.

Dukinfield.—Cheshire C.C. propose aged persons' home, Yew Tree-la.

Durham.—Application has been made for a licence at £8,800 for reconstruction of Cassop Colliery Victory Workmen's Club. Architects, Matkin & Hawkins, Barclays Bank-chbrs., Fawcett-st., Sunderland.

Folkestone.—A new workshop block is to be added to Technical College, at an est. cost of £50,000. Plans by C.A., S. H. Loweth, F.R.I.B.A., Springfield, Maidstone, with quantities by D. R. Nolans & Co., 30, John-st., W.C.1.

Glendale.—Reavell & Cahill, Lloyds Bank-chbrs., Alnwick, have prepared plans for 70 houses on High Fair site for R.D.C. Contract may be let shortly.

Hartlepool.—A proposal has been submitted to T.C. by R. Bailey, of Yarm-on-Tees for a cinema at West View, Hartlepool. The proposed premises will be of "Orlit" construction, manufactured by Tarslag, Ltd., Stockton-on-Tees.,

Hebden Bridge.—U.D.C. have approved plans for 18 cottage flats at Banksfields, Mytholmroyd. Est. cost, £16,281.

Hemel Hempstead.—A large site has been allocated by Development Corpn. for a factory, offices, etc., for Addressograph-Multigraph, Ltd., Oxgate-la., Willesden, N.W. Architects, Fuller Hall & Foulsham, 212, High Holborn, W.C.1. Cost about £250,000.

Hereford.—C.C. have approved plans by Scriven, Powell & James, A.A.R.I.B.A., Cathedral-chbrs., King-st., for alterations and improvements to "Anglers' Inn," Union-st., for Cheltenham & Hereford Breweries, Ltd.

Hereford.—T.C. approved layout for 180 houses, Quarry Bank, Tupsley estate.

Kendal.—Manchester Reg. Hospital Brd. propose extensions to "Helme Chase" Maternity Home at £58,019. T. Duffy, architect to Brd.

Lancs.—C.C. seek loan sanction of £10,800 for extensions and two cottages at Boothstown Remand Home.—E.C. propose new grammar sch. for girls at Knowsley Park-la., Prescot, also residential sch., Broughton-in-Furness, at £25,910.

Lapley (Wheaton Aston).—Restoration of Lapley church proposed. Work to commence as soon as possible.

Leicester.—T.C. approved erection of two jun. schools at £109,000.

Lincs.—E.C. has appointed Alister MacDonald, F.R.I.B.A., Aldine House, Bedford-pl., W.C.1, as architect for proposed Doncaster-rd. prim. sch., Scunthorpe, with William Saunders & Partners, 24, Castle-gate, Newark-on-Trent, as quantity surveyors. A starting date in December has been awarded.

Littlehampton.—Church-hall to cost about £15,000. East Ham-rd. and Mantling-rd. Plans by W. Egerton Owen, L.R.I.B.A., Beach-rd.

Liverpool.—Senate University propose new medical sch. and chemistry building. Architects, Weightman & Bullen & R. R. R. Young, both of Liverpool.

Louth.—Prim. sch. to be built, Monks Dyke, for E.C., who have been given a starting date in December. Architect, Denis Clarke Hall, F.R.I.B.A., 6, Masons-yard, St. James's, S.W.1. Quantity surveyors, David, Belfield & Everest, 9, Ashley-pl., S.W.1.

Macclesfield.—Surgical block of 60 beds proposed at Infirmary, by Management Com.

Middlesbrough.—Contracts to be placed by T.C. for further 68 houses on Berwick Hills site. Boro' E., J. A. Kenyon.

Middleton.—B.C. approved plans for:—Extensions to works, Bradshaw Mill, Greengate, for Goldich & Sons.—No. 3 extension scheme and building for offices and card-room at Cromer Ring Mill, for Cromer Ring Mill (1919), Ltd.—Lancs C.C. propose fire stn. at Bowlee.—G.P.O. propose sorting office, Durnford-st.

Morecambe.—B.C. approved immediate extension to General Post Office, Market-st.

Morpeth.—Nat. Coal Brd., Newcastle-on-Tyne, has prepared scheme, at £18,476, for privy conversions at Chevington Drift and Swarland-ter.

Newcastle (Staffs).—B.C. approved plans for:—14 houses, Stratford-av., May Bank, for Baddeley Bros.—Extensions to factory, Lower Milehouse-la., for Rists Wires & Cables, Ltd.—12 houses, Lunt-st., May Bank, for Phillips Bros. (Silverdale), Ltd.—Office, garage and warehouse, Prospect-ter., for Hennessey Bros.

Northampton.—Oxford Reg. Hospital Com. has appointed W. F. Howard, F.R.I.B.A., 20, Kensington Park-gdns., W.11, to prepare block plans for future development and expansion of Gen. Hospital.

Northampton.—Extensions to operating theatre, Creaton Sanatorium, proposed for Management Com. Plans by F. H. Allen & Son, 24, Albion-pl.

North Shields.—Tasker & Child, Trinity-bldgs., New Bridge-st., Newcastle-on-Tyne, are architects for proposed rebuilding of fish-oil factory, Union-rd. and Tanners Bank, for R. Irvin & Sons, Ltd.

Northumberland.—Schemes for building old people's hostels at Low Willington Farm, Wallsend, and at Bebside, Blyth, are being considered by Northumberland C.C.

Northumberland.—C.C. to build 20 farm houses and farm buildings at East Heddon. Plans by Cty. A., W. W. Tasker. Manchlen & Weightman, Saville-row, Newcastle-upon-Tyne, are architects for 20 more houses at Broomhill.—C.C. is to build a sec. sch. at Ovington. Architect, W. W. Tasker.

Northumberland.—Ed. Com. has acquired land at Amble as sites for two schools. Architect, W. W. Tasker.

Nuneaton.—Reconstruction of Astley Parish Church, costing £15,000. Architect, Harold Goldstraw, A.R.I.B.A., Victoria-chbrs., Tunstall, Staffs.

Oldham.—B.C. approved plans for:—Extensions to factory, Clive-st., for E. Faulkner Bros.—Extensions, Featherstall-rd. North, for Condor Ironworks, Ltd.—New sec. sch., Hathershaw, for C.C. (architects, Thorpe & Wyman, Oldham).—Boro' E. to prepare detailed plans, estimates, etc., for occupation centre, Cardwell-st.—C.E. Authorities propose new church, Limeside estate.—B.C. approved layout for 500 houses, Alt estate.

Oxford.—Work to start this year on new inorganic chemistry lab. at University. Architects, Lanchester & Lodge, FF.R.I.B.A., 10, Woburn-sq., W.C.1.

Penrith.—North-Western Electricity Brd. are to erect stores, offices, garages, workshops, etc., Newton Gate.

Peterlee (Co. Durham).—Alexandre, Ltd., clothing manufacturers, Darlington and Leeds, are seeking an additional building licence, at £28,000, for new factory premises.

Portsmouth.—Smith's Potato Crisps (1929), Ltd., Great West-rd., Brentford, Middlesex, to build large model factory, Fareham-rd. Architects, J. Stanley Beard, Bennett & Wilkins, 101, Baker-st., W.1.

Reading.—Hospital Management Com. proposes reconstruction, etc., at Park Hospital. Architect, J. F. Watkins, F.R.I.B.A., 7-8, Queen-sq., High Wycombe.

Reading.—E.C. to invite tenders, returnable on June 22, from a selected list of contractors, for superstructure of first stage of new technical college. This is the workshop block estimated to cost £60,000 out of a total of £500,000. Architects, Lanchester & Lodge, FF.R.I.B.A., 10, Woburn-sq., W.C.1. Consultant engineers, Oscar Faber & Partners, 1, Worley-rd., St. Albans, and R. Travers Morgan & Partners, 11, Victoria-st., S.W.1. Quantity surveyor, J. R. Hovenden, F.R.I.C.S., 8, Princes-st., S.W.1.

Runcorn.—U.D.C. approved plans for:—Extensions to C.P.F. building at Castner Kellner Works, for I.C.I., Ltd., General Chemicals Div.—Instrument workshop, Rocksavage Works, for I.C.I., Ltd.

Salop.—E.C. propose colleges of further education at Oswestry and Wellington at £380,000 and £570,000 respectively.

Seaham.—U.D.C. is to build 40 more houses at £45,852. Surveyor, Council Offices, Seaham Harbour, Co. Durham.

Sheffield.—T.C. to lease sites at Carlisle-st., Dorking-st. and Kirk-st. to Morgan Fairest, Ltd., for engineering shop, warehouse and offices; site at Carlisle-st., Dorking-st. and Sorby-st., to Alfred Jackson (Sheffield), Ltd., for new tools factory.—T.C. propose branch libraries at Woodseats Crosspool, Parson Cross and Handsworth Woodhouse.

Sheffield.—Large dental hospital proposed at Wellesley-rd. for United Sheffield Hospitals Brd. Plans by Adams, Holden & Pearson, FF.R.I.B.A., 2, Gordon-sq., W.C.1.

Shilbottle.—J. Laing & Co., Ltd., Carlisle, have been invited by Alnwick R.D.C. to build 100 miners' houses.

Shipley.—U.D.C. approved surveyor's £109,670 estimate for 88 houses, Owlet Hall estate.

Smethwick.—Working drawings are being prepared for first section of extensions to Chance Technical College, estimated to cost £120,000. Starting date, January, 1952. Architect, W. W. Atkinson, A.R.I.B.A., 4, Raymond-bldgs., Gray's Inn, W.C.1. Consultant engineers, Andrews, Kent & Stone, 329, High Holborn, W.C.1. Quantity surveyors, Davis, Belfield & Everest, 9, Ashley-pl., S.W.1.

South Shields.—Detailed plans for additions to dry dock, for Middle Dock & Engineering Co., Ltd., prepared by Waterhouse & Rounthwaite, 165, Westmorland-rd., Newcastle-on-Tyne, have been approved by T.C.

Staffs.—E.C. propose adaptation in stages of £5,000 of "The Limes," Barlaston, as a replacement College of Adult Education.—E.C. propose new College of Further Education, Newcastle-under-Lyme.

Stanley (Co. Durham).—U.D.C. has been asked to build 100 houses to accommodate extra miners needed at Beamish Mary Colliery.

Stockport.—E.C. propose new Cty. Sec. Sch., Offerton.

Stockton-on-Tees.—T.C. has been allocated £16,000 for the second part of High-st. reconstruction scheme.

Stockton-on-Tees.—R. Burke, Lambton-rd., Jesmond, Newcastle-on-Tyne, is preparing plans for R.C. prim. sch., Durham-rd.—J. W. Cameron & Co., Ltd., Lion Brewery, West Hartlepool, are reviving scheme for reconstruction of the "Wild Ox Hotel," Norton-rd.

Stoke-on-Trent.—T.C. approved revised plans for residential accommodation for aged at Mill Hill Farm estate, Chell Heath, at £34,200.

Stourbridge.—T.C. propose additions to Wollescote Community Centre.

Sunderland.—T.C. to consider erection of blocks of flats for single people.

Swansea.—Showrooms, repair shops, etc., proposed William-st., for Nelson Garages (Western), Ltd. Plans by J. G. L. Poulson, L.R.I.B.A., 29, Ropergate, Pontefract, Yorks.

Tunbridge Wells.—Extensions are proposed by Kent E.C. to Huntley's Voluntary Sch., at £35,000. Architects, Burns & Guthrie, 11, Calverley-park, Tunbridge Wells.

Turners Hill (Sussex).—Adaptation of Fen Place as home for retired clergy, for Congregational Union of England and Wales. Plans by Charity & Thirtle, F./A.R.I.B.A., 14, Howick-pl., S.W.1.

Tynemouth.—Thomas De La Rue, Ltd., are to erect plate grinding and polishing shop, Norham-rd.—William Stockdale, 73, Howard-st., North Shields, has prepared preliminary plans for shops and flats, Charlotte-st., for J. S. Baker, and workshops in Hudson-st and Bird-st., for T. B. Bilton & Sons, engineers.—Tyne Gangway Co., Ltd., Bentonway, Wallsend, proposes using land adjoining Howdon-rd., for industrial development.—Northumberland Territorial Army and Air Force Assoc. to erect drill-hall and residential accommodation west of Broadway.

Wallasey.—B.C. appointed H. W. Langdon & Every, London, as quantity surveyors for 12 shops and eight maisonettes on Part 11 of site No. 9.

Wallsend.—Tasker & Child, 25, New Bridge-st., Newcastle-on-Tyne, are architects for offices for dry dock dept. of Wallsend Slipway and Engineering Co., Ltd.—Hetherington & Wilson, County-chbrs., 52, Westgate-rd., Newcastle, have prepared

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plans for internal alterations and additions to "Commercial Hotel" for James Deuchar, Ltd.

Warrington.—E.C. propose new engineering and building block on Museum-st. site as a first instalment of College of Technology (1952/3 programme).—Thames Board Mill Co., Ltd., propose large extensions to works.

Warrington.—T.C. propose erection of miners' houses, Chapel-la.

Wellingborough.—Licensing Magistrates approved plans for alterations to "Old Swan Inn," Wellingborough, and "Horseshoe Inn," Wilby.

Wellington.—R.D.C. Surveyor to prepare layouts for 40 houses between Mafeking-rd. and Haybridge-ave.; 20 houses between Haybridge-ave. and the railway; 76 houses between Ketley Brook and the railway and 18 houses on Horton by-pass, all at Hadley.

West Cumberland.—Reg. Hospital Brd. propose nurses' home on west side of Mason-st., Workington. Architect, J. Saul, Nat. Provincial Bank-chbrs., Workington.

Workington.—B.C. propose social centre, Moss Bay.—Distington Engineering Co., Ltd., to erect 18 houses, Westfield.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H. M. Government Departments*.

Alnwick.—Erection of 100 houses at Shilbottle, for R.D.C.: *G. Wimpey & Co., Ltd., Ochard House, Jesmond, Newcastle.

Birkenhead.—Erection of 130 houses on the Woodchurch estate, for T.C.: *Lloyd & Cross, Ltd., £217,109.

Birmingham.—Proposed King's Heath Roman Catholic secondary modern school, for E.C.: *W. J. Whittall & Sons, Ltd., 132, Lancaster-st. 4, £102,281.

Bolton.—52 houses at Roscoe Fold, for T.C.: *Direct labour, £59,275.

Brimsdown (Essex).—Structural steelwork for Brimsdown "B" power station, for British Electricity Authority. T. Yule, A.M.I.C.E., chief civil engineer, Eastern Division, Northmet House, Southgate, N.14: *Dawnays, Ltd., Steelworks-rd., Battersea, S.W.11.

British Railways (London Midland Region).—New railway contracts placed by L.M.R.—British Railways (London Midland Region) announce that railway contracts have been placed as follows:—

Dawnays, Ltd., Steelworks-rd., Battersea, S.W.11, for structural steelwork at Cricklewood carriage sheds.

Harland & Wolff, Ltd., North Woolwich, E.16, for the supply, delivery and erection of the steelwork for a new roof covering over the main store and metal stores, and new chain store, at Bow locomotive works.

British Challenge Glazing Co., Ltd., Marshgate-la., Stratford, E.15, for the recovering of the roof with patent glazing at Queens Park station.

W. H. Heywood & Co., Ltd., 54, Victoria-st., Westminster, S.W.1, for patent glazing in connection with the recovering of Southport, Chapel-st. station roof.

Robertson Building Service, the Wolverhampton Corrugated Iron Co., Ltd., Ellesmere Port, Wirral, Cheshire, for protective metal sheeting in connection with the recovering of Southport Chapel-st. station roof.

C. & T. Painters, Ltd., Mordaunt-rd., Harlesden, N.W.10, for labour for the cleaning and painting of the roof over platforms 1-8 of Broad-st. passenger station, London.

Demolition and Construction Co., Ltd., 3, St. James's-sq., S.W.1, for the removal of the existing covering, provision of fire-resisting safety sheets, cleaning gutters, erecting barriers and temporary protection in connection with the recovering of Liverpool Exchange station roof.

Caterham.—Modernisation of kitchens, etc., St. Lawrence's Hospital, for South-West Metropolitan Regional Hospital Board. E. H. Allsford, F.R.I.B.A., architect, 37, West Hill-rd., Southfields, S.W.18.: *Grace & Marsh, Ltd., New Bridge Works, Waddon, Croydon, £16,256.

Coventry.—Stage 1 of Culuden Castle Secondary School, for E.C.: *G. Wimpey & Co., Ltd., London, £25,578.

Croydon.—New kitchen, etc., Queen's Hospital, for South-West Metropolitan Regional Hospital Board. G. Whittaker, F.R.I.B.A., architect, 16, Ludgate-hill, E.C.4. A. Sandford, M.I.Mech.E., consulting engineer, 2, Gate-st., Holborn, W.C.2: *Truett & Steel, Ltd., 71, High-st., Thornton Heath, Croydon, £10,391.

Darlington.—46 houses on the Sprinfield site, for T.C. Borough Architect, E. A. Tornbohm: *F. Shepherd & Son, Ltd., York.

Darlington.—Erection of 30 houses at Firth Moor, for T.C. Borough Architect, E. A. Tornbohm: *Boddy & Bell, Thomas-st., Darlington.

Forfarshire.—First development of the Corporation of Coupar-Angus housing scheme at The Middlefield. Mr. R. W. Love, F.R.I.B.A., architect, 7, Brown-st., Blairgowrie:

Excavation, brick, cement and allied works, *J. B. Stewart & Sons, £6,357.

Plumber, sanitary engineering and allied works, *Robert Martin, £1,740; *J. D. Doig, Alyth, £1,325; *J. & F. Findlay, £1,575; *John Doig & Son, £1,403.

Joinery, carpentry and allied works, *D. & J. Scott, Blairgowrie, £3,735.

Plaster, lathing and allied works, *P. Donaldson & Son, £1,579; *Harry Webb, £1,330.

Friern Barnet.—48 flats at 240, Friern Barnet-la., for U.D.C. Architect, Henry Braddock, A.R.I.B.A., The East Gallery, St. John's Wood Church, N.W.8. Quantities by H. M. Millar, F.R.I.C.S., 88a, St. John's Wood High-st., N.W.8:

James Webb & Son (Builders), Ltd., Clerkenwell, E.C.1	£94,787
A. Scott & Sons (London), Ltd., Winchmore Hill, N.21	93,860
Geo. Parker & Sons, Ltd., Peckham, S.E.15	93,753
The Amalgamated Building Contractors, Ltd., Wandsworth-rd., S.W.8	93,100
Francis Jackson Contractors, Ltd., Ickenham, Middlesex	92,326
F. Troy & Co., Ltd., 131, Great Suffolk-st., S.E.1	91,549
Joseph Cartwright, Ltd., Streatham High-road, S.W.16	90,304
C. & A. Catchpole, Ltd., Potters Bar, Middlesex	89,575
W. F. Marshall, Ltd., Buckhurst Hill, Essex	89,245
Rowley Bros., Ltd., Tottenham, N.17	87,334
Head & Son, Ltd., North Wembley, Middlesex	85,842
*Matthew James & Co., Ltd., 24, Violet-rd., E.3	85,506

Gateshead.—Erection of canteen for Hendees, Ltd., Lobley Hill-rd. Architects, Fennell & Co., Bridge End-chbrs., Chester-le-Street: *Bewley & Scott, Ltd., Dunston-on-Tyne.

Glasgow.—824 houses on the Balarnock housing scheme. Mr. Archibald J. Jury, F.R.I.B.A., Housing Offices, Glasgow Cross, The Trongate, Glasgow, E.C.:

56, 24, and 244, *Melville, Dundas & Whitson, Ltd., £79,490, £40,550, £353,691.

80, 20, and 144, *J. Crawford & Son, Ltd., £113,569, £36,917, £207,920.

96 and 64, *J. Laidlaw & Sons, Ltd., £135,356, £100,525.

96, *W. S. Gordon & Son, Ltd., Partick, £130,559.

Hull.—60 flats, Anlaby-rd. redevelopment area, for T.C. Andrew Rankine, A.R.I.B.A., City Architect, Guildhall: *J. Mather & Son, Ltd., 15, De Grey-st., £72,400.

Hull.—New junior department and extension of infants' department, Wold-rd. school, for T.C. Andrew Rankine, A.R.I.B.A., City Architect: *Robinson & Sawdon, Ltd., 95-97, Alexandra-rd., £71,400.

Kettering.—20 houses at Grange estate, for T.C.: *Direct labour.

Kingston-upon-Thames.—Reconstruction of shop-front, alterations and extension of premises, 57, Clarence-st., for Lichfields (Kingston), Ltd. David A. Wilkie & Partners, architects, 45, Chancery-la., W.C.2.: *W. H. Gaze & Sons, Ltd., High-st.

Lancs.—Works for E.C.:—Four additional classrooms and adaptations at Fleetwood grammar sch.: *Brown & Jackson, Ltd., Fleetwood, and Bristol Aeroplane Co. (Housing), Ltd., Weston-super-Mare, £4,419 and £6,408; erection of Urmston, Flixton, Irlam-rd. secondary mod. boys' sch.: *Moston Brick and Building Co., Ltd., Collyhurst, Manchester, £162,584; alterations and adaptations at Thelwall Massey Hall proposed special sch.: *Levi Thomason & Sons, Ltd., Lymm, Cheshire, £15,325; additional classrooms at Fulwood, Watling-st., county sch.: *J. Turner & Sons, Ltd., Preston, £11,568.

Erection of Rawtenstall Waterfoot nursery sch.: *Ashworth & Hobson, Rawtenstall, £27,743; extensions and adaptations at Crosby St. Edmund's R.C. sch.: W. A. Gale, Ltd., Liverpool, £37,584; two additional classrooms at Middleton Boarshaw junior and infant's county sch.: *Ashton Smethurst (Builders), Ltd., Middleton; erection of Ashton-under-Lyne College of Further Education: *Moston Brick and Building Co., Ltd., Manchester, £130,374.

Leamington Spa.—40 houses at Whitnash estate, for B.C.: *Geo. Wimpey & Co., Ltd., London.

Liphook (Hants).—Nurses' home, etc., King George's Sanatorium for Sailors, Bramshott, for South-West Regional Metropolitan Hospital Board. B. G. Duckett, A.R.I.B.A., architect, 80, Wimpole-st., W.1. A. E. Thornton-Firkin & Partners, quantity surveyors, 17, Fitzhardinge-st., W.1: *R. Holford & Co., Ltd., Forest-rd., Effingham, £9,289.

London.—Modernisation and alterations to 17, Grosvenor-pl., S.W.1, for the Embassy of Ireland. Architect, Mr. Raymond McGrath, B.Arch, F.R.I.B.A.: *P.C.S., Ltd., 3, St. James's-sq., S.W.1, £64,000.

London.—Reinstatement after war damage of Congregational Church, Algernon-rd., S.E. Simmonds & Brown, architects, Central-chbrs., Hendon Central, N.W.4: *James Watt (Catford), Ltd., 1, Central-par., S.E.6.

¶London (Admiralty).—Particulars of contracts placed by Civil Engineer-in-Chief's Dept., Admiralty.—*Portsmouth*: Reconstruction of north wall, Peter Lind & Co., Ltd., Stratton House, Piccadilly, W.1.

London (Air Ministry).—Contracts to value of £300 or over for week ended May 5—:

Air field lighting services, etc.: T. Clarke & Co., Ltd., 129, Sloane-st., S.W.1; Drake & Gorham (Contractors), Ltd., 36, Grosvenor-gdns., S.W.1. *Air field lighting, fittings, etc.*: Simplex Electric Co., Ltd., Blythe Bridge, Stoke-on-Trent. *Resurfacing*: Penmaenmawr and Trinidad Lake Asphalt Co., Ltd., Fenwick-st., Liverpool 2. *Painting of buildings at R.A.F. stations*: J. H. Woodward (Contractors), Ltd. Rosefield-st., Leamington Spa; A. Ross & Co., Station-rd., Westgate-on-Sea; Clarke & Fenn, Ltd., 16, Old Town, Clapham, S.W.4. *Provision of additional accommodation*: A. G. Carter, Ltd., Drayton, Norwich; J. Crewdson, Horley, Surrey. *Construction of runways, etc.*: A. Monk & Co., Ltd., Padgate, Lancs; Fitzpatrick & Sons, Ltd., Old Ford-rd., E.C.2.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ended May 5:—

London: 263-265, Hoe-st., Walthamstow, alterations and extensions, W. T. Williamson, 18, Sturge-ave., Walthamstow. *Berkshire*: Chandos-rd., Newbury, erection of 104 houses, E. A. Bance & Sons, Ltd., Ball Hill, Woolton Hill, Newbury. *Hampshire*: H.P.O., High-st., Southampton, alterations and reinstatement, W. A. Fussell, 23-24, Orchard-pl., Southampton.

Norfolk: Norwich, erection of telephone repeated station, Thomas Gill & Son, Rupert-st., Norwich. *Suffolk*: H.P.O. and Telephone Exchange, Saxmundham, extensions, G. A. Kenny & Sons, Ltd., Army Works, Burrell-rd., Ipswich.

¶London (War Dept).—Works contracts placed by W.D. during week ended May 5:—*Surrey*: Painting, W. T. Pickering & Sons, Ltd., Watford. *Norfolk*: Roadwork, Percy Bilton, Ltd., London, W.1. *Sussex*: Miscellaneous, George Lynn & Sons, Ltd., Brighton. *Middlesex*: Building, Kent and Sussex Contractors, Ltd., Sidcup. *Berkshire*: Fencing, Penfold Fencing and Engineering, Ltd., Watford. *Wiltshire*: Miscellaneous, Downing, Rudman & Bent, Ltd., Chippenham.

Hampshire: Miscellaneous, Hampshire Contractors, Ltd., Winchester. *Wiltshire*: Building, T. King & Sons (Bldrs.), Ltd., Andover. *Surrey*: Painting, Arnold Sharrocks, Ltd., Ash. *Hampshire*: Roadwork, O. J. Elliott & Co., Ltd., Brisotl.

Wiltshire: Painting, Fields, Ltd., Reading. *Derbyshire*: Painting, J. Roe & Son, Ltd., Derby. *Nottinghamshire*: Miscellaneous, C. Tack (Builders), Ltd., Mansfield. *Lancashire*: Miscellaneous, R. S. Ainscough, Ltd., Oldham; Building (concrete), Humphreys, Ltd., Liverpool. *Inverness-shire*: Miscellaneous, A. & H. Chisholm, Inverness.

Malling.—26 houses at East Peckham, for R.D.C.: *J. Collier & Sons (Larkfield), £31,715.

Meaford (Staffs).—Structural steelwork for turbine and boiler houses, Meaford "B" Power Station, for British Electricity Authority. Sir Alexander Gibb & Partners, consulting civil engineers, Queen Anne's Lodge, Broadway, S.W.1: *Cleveland Bridge and Engineering Co., Ltd., Darlington.

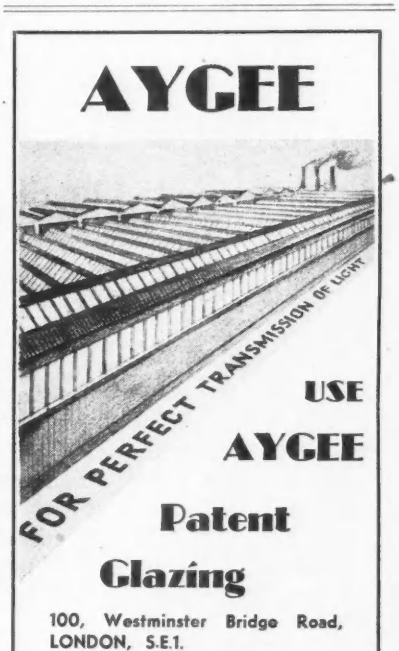
Newcastle-on-Tyne.—Extensions to Richardson's Leather Works, Elswick, Newcastle-upon-Tyne. Architects, L. J. Couves & Partners, Carliol House, Newcastle: *Stephen Buy, 224, Westgate-rd., Newcastle.

Newcastle-on-Tyne.—Alterations to motor showrooms of T. Holmes & Co., Scotswood-rd., Newcastle-upon-Tyne: *Sadler Bros., Byker, Newcastle.

Northampton.—22 dwellings at Sunnyside, for T.C.: *H. Holloway & Sons, Ltd., 8, Clarence-ave., Northampton.

Norwich.—Proposed Lakenham secondary modern school, for E.C. L. G. Hannaford, F.R.I.B.A., City Architect: *J. Youngs & Son, Ltd, 24, City-rd., £175,223.

Norwich.—Two-storey administrative office build-



ing, Westwick-st., for Coleman & Co., Ltd. Hoare, Lea & Partners, consulting engineers, Brook House, Park-la., W.1: *J. Young & Son, Ltd., 24, City-rd.

Oxford.—New wing, Old People's Homes, 115, Banbury-rd., for Oxford Old People's Homes. Wilkins, Arnett & Knight, architects, 99, St. Aldate's: *E. Organ & Sons, 205, Cowley-rd.

Plymouth.—Seven shops, seven maisonettes, 24 houses, four workshops and 14 garages, Ernesettle estate, for T.C. Louis de Soissons, A.R.A., & Partners, architects, 11, The Crescent. Smith & Bowl, quantity surveyors, 17, Portland-sq.: *F. J. Stanbury, Ltd., Alexandra-rd., £69,950.

Plymouth.—Whitleigh No. 1 primary school, for E.C. Louis de Soissons, A.R.A., & Partners, architects, 11, The Crescent: *J. Garrett & Son, Ltd., Embankment-la., Laira, Plymouth, £85,256.

Reading.—Mid-South secondary modern school for boys, for E.C. C. H. A. Willett, L.R.I.B.A., borough architect, Town Hall. H. A. Sandford, M.I.Mech.E., consulting engineer, 2, Gate-st., W.C.2: *Kirk & Kirk, Ltd., Atlas Works, Putney, S.W.15, £192,806.

Rednal (Coventry).—Erection of new mission church. Architects, John P. Osborne & Son, 85, Colmore-row, Birmingham: *Parsons & Morrin, Ltd., 133, Belgrave-rd., Birmingham, £10,500.

Sale.—70 dwellings at Baguley-la. No. 3 site, for B.C.: *F. Entwisle & Co., Ltd., Broadway, Davyhulme, £95,280.

Salford.—Alterations and extensions to public library at King-st., for T.C.: *Drye & Co. (Salford), Ltd., Salford.

Seaham Harbour.—Extensions to bakery at Seaham Harbour. Architects, Marshall & Tweedy, Grainger House, Blackett-st., Newcastle: *Randle & Co., Ltd., Back Dunelm-st., Sunderland.

Southampton.—Rebuilding shops and showrooms, etc., 15-17, High-st., for Shepherd & Hedger, Ltd. Weston, Burnett & Thorne, architects, 44, Westwood-rd.: *Frank Kimber & Son, Ltd., 68a, Portswood-rd.

Southampton.—Reconstruction of shop and showroom, 123, High-st., for Kemp & Co. W. H. Saunders & Son, architect, Bank-chbrs., Carlton-cres.: *R. H. Hammond, Ltd., 236, Winchester-rd.

Southend-on-Sea.—Large extensions to works, etc., Bournemouth Park-rd., for Industrial Press (Southend), Ltd. H. P. Liberty, A.R.I.C.S., architect, 33-36, Weston-chbrs.: *A. E. Whistler & Son, 15, Surbiton-ave.

Southend-on-Sea.—Superstructure of first stage of Westcliff High School for Boys, Belfairs, for E.C. F. W. Smith, A.R.I.B.A., borough architect, 30, Alexandra-st. Widnell & Trollope, quantity surveyors, Broadway-court, S.W.1: *Prestige & Co., Ltd., 149, Grosvenor-rd., S.W.1, £177,903.

South Moor.—Erection of bakery at South Moor, Co. Durham. Plans by Marshall & Tweedy, Grainger House, Blackett-st., Newcastle: *Middlemiss Bros., Ltd., Stepney Bank, Newcastle.

Stanley.—10 houses at King-st., South Moor, for U.D.C.: *Direct labour, £14,864.

Stanley.—76 houses at Shield-row, for U.D.C.: *Direct labour.

Stanley (Yorks).—26 houses at Coach-rd. (extention) site, for U.D.C. J. Hustwit, E. & S., Council Offices, Coach-rd., Outwood: *Duncan F. Mann & Sons, Thorpe, nr. Wakefield, £28,751.

Stockport.—New propagation centre at Woodbank Park, for T.C.: *W. Richardson & Co., Ltd., Stockport, £45,871.

Sunderland.—Alterations to Atlas Furniture Works, for Bergson & Co. Architects, Stephenson & Gillis, Saville-chbrs., North-st., Newcastle-on-Tyne: *F. J. Hepple, Ltd., Dunn-st., Newcastle-on-Tyne.

Swadlincote.—Eight houses, Midway estate, for U.D.C. J. W. May, M.I.Mun.E.: *F. R. Searancke, Ltd., Belmont-st., Swadlincote, Burton-on-Trent.

Warkworth.—Eight houses at Warkworth: *R. Carse & Sons, High-st., Amble, Northumberland.

Winchester.—96 houses, Weeke Manor estate, for T.C. H. S. Sawyer, F.R.I.B.A., architect, Queen Anne's-chbrs., High-st.: *C.P.C., Ltd., Portswood-rd., Southampton, £119,402.

Wolverhampton.—78 dwellings at Willenhall-rd., for B.C.: *Direct labour, £95,277.

Worthing.—Alterations and additions to premises, South-st., for Lloyds Bank, Ltd. Goldsmith & Pennells, architects, 13, Liverpool-gdns.: *J. T. Braybon & Son, Ltd., Princes House, North-st., Brighton 1.

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